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ABSTRACT

Major issues that will affect Texas higher education in the next decade are addressed. Data and information about the higher education system are presented, and an attempt is made to determine the impact of trends and issues upon colleges and universities. Concepts and perspectives on the appropriate response by higher education and planning approaches at the state and institutional level are considered. Projections for the 1980s are made about the following conditions: inflation, impact of energy costs on higher education, energy resources, taxpayer resistance, water resources, and the Texas economy. The following new developments are addressed: enrollment in Texas colleges and universities; the funding issues pertaining to costs, formulas, and reallocations; accountability, management effectiveness, and tighter governmental control; instructional television; construction slowdown; and collective bargaining. Issues of ongoing concern include: leadership, tenure, faculty salaries, research, college curricula for the 21st century, articulation, continuing education, Blacks and Hispanics in Texas public higher education, and postsecondary education and occupational demand. The situation in the public sector, fields of instruction, the community colleges, education for the health professions, private higher education, student financial aid in the 1980s, and the governance structure of the state higher education system are addressed. Recommendations are offered to the legislature and to colleges and universities, and priorities for the coordinating board are listed. (SW)

ED200138

INFORMING THE FUTURE

A Plan for Higher Education for the Eighties

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INFORMING THE FUTURE

A Plan for Higher Education for the Eighties

January 1981

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January 30, 1981

The Honorable William P. Clements, Governor of Texas
The Honorable William P. Hobby, Lieutenant Governor of Texas
The Honorable William Clayton, Speaker of the House
of Representatives
Members of the 67th Legislature

Dear Governor Clements, Lieutenant Governor Hobby, Speaker Clayton, and Members of the Legislature:

On behalf of the Coordinating Board, I am pleased to transmit this long-range plan for Texas higher education in the 1980s. The plan seeks to present a framework for strategic planning at both the state and institutional levels, focusing on those factors which the Board believes will most acutely influence Texas colleges and universities in the coming decade.

Essentially, the plan:

- highlights the achievements of higher education in improving the quality of life for all Texans;
- sets forth recommendations for legislative consideration, including an increase in state tuition rates and higher faculty salaries, and urges continued rejection of proposals for the establishment of any new four-year colleges or universities or law schools;
- examines the implications of such new developments as instructional television and the problems of a smaller base of students, escalating costs and constricting financial support; and
- updates information on the status of the state's public and private system of higher education.

A companion volume, available upon request, explores a number of these issues in depth.

The changing economic, social and demographic conditions of the eighties will confront state policy-makers with difficult decisions over the next several biennia. But I am optimistic that with the continued support of state government, higher education will successfully meet the challenges of the decade ahead.

Respectfully submitted,

Preston Smith

Preston Smith
Chairman

INTRODUCTION

This plan is many things.

It attempts, in a way that may be helpful to the colleges and universities and to state-level decision-makers, to address the major issues that will affect Texas higher education in the next decade. It is descriptive, providing extensive data and information about the higher education system. It is analytical in that it attempts to determine the impact of trends and issues upon the colleges and universities. It is philosophical since it sets forth concepts and points of view on how higher education should respond to challenges and even how planning itself should best be done at the state and institutional level. It is intuitive, for it contains guesses, based on experience, about how certain events and developments will affect institutions of higher learning. In emphasizing some issues as more important and more deserving of attention than others, it constitutes a system of priorities. And underlying all this, it is a statement of values about higher education in our society.

It is not a detailed plan of specific goals to accomplish over a critical path of time on narrowly defined topics. Rather, it is essentially a strategic plan, attempting to focus upon those factors which acutely influence institutions of higher education--their success, their effectiveness, their mission and their health and well-being. In highlighting those elements, the plan also tries to show how the various factors might be manipulated or modified by the institutions or the state to reduce harm to institutions or increase benefits to them.

To limit considerations in a plan to those elements we are capable of measuring and those we can best understand at the moment is like looking for a lost coin where the light is best, even though it may have been lost a block away. Unfortunately, much planning focuses on the trivia that each of us of necessity must administer day by day. A planning effort should at least begin with the idea of stepping back for a new and broader look. Such a look is certain to encompass many of the concerns which impinge on the daily activities of higher education administration, but it also should consider the impact of a wide range of social, political, economic and environmental conditions. In fact, these broader issues actually may be influencing changes far faster than all of our current policies and best managerial efforts.

We hope this plan is at least modestly successful in bringing some of these additional factors into perspective while not ignoring the more evident trends. In looking at the problems ahead, we need to resist becoming discouraged, for it is always the envisioned deficiencies and shortfalls that we label as our problems. In the mid-'60s, the colleges and universities were deficient in facilities, equipment, libraries and, particularly, qualified faculties. Yet it was precisely in addressing those needs that higher education, with a broad base of support, excelled in meeting the challenges.

In responding to the obstacles and problems of the past, Texas higher education has been a major partner with government and industry in bringing

to our state and our citizens a host of positive accomplishments. Institutions of higher education have contributed significantly to:

1. The enhancement of the quality of life at home, in the community, in the concert hall, in the museums and in the physical and mental health of individuals.

2. The discovery, mining, processing, use, protection and conservation of resources.

3. The overcoming of great distances and extreme temperatures of the Southwest.

4. The development and application of new technologies contributing to employment, increased productivity and a higher standard of living.

5. The extension of life expectancy and the improvement of health in all years of life.

6. The provision of services to the elderly, the socially dependent, the impoverished and the uneducated and unemployable.

7. The diversification of our economy as a foundation to the financial security of all citizens.

8. The improvement of crops, agricultural techniques and the processing and delivery of foods and farm products.

9. The exploration of the oceans and interplanetary space, as well as the micro-systems of the cells of life.

10. The stability and effectiveness of a democratic and federalist form of government in a progressive state dedicated to preserving conservative values.

11. The planning of cities, transportation networks, water systems, coastal zones and wildlife and ecological systems.

12. The provision of greater safety for workers and improved access for the handicapped.

13. The improvement of crime prevention and personal security.

14. The opportunity for education in an egalitarian and diversified system which preserves and nurtures excellence at different levels.

As we recognize the positive side effects that accrued to the state and our citizens while our colleges and universities struggled with the "problems" of the '60s and '70s, we should take heart from the positive results which should be forthcoming as we face the new issues of the next decade or more, bringing us to the doorstep of the next century.

We will be responding in the next decade to the problems of a smaller base of students in some colleges, escalating costs and constricting financial support. Among America's strongest resources have always been the attitudes and philosophy we bring to our problems. Our traditional optimism has always armed us against the future. But in looking on the positive past accomplishments and our high hopes for the future, we cannot ignore the facts and the issues we will have to face. By looking at the more difficult possibilities of the future, we are not caught unprepared.

To look beyond the immediate issues, the Coordinating Board contracted for a number of special reports on these and additional topics. A number of those papers are reproduced in a companion volume, along with several staff papers on other subjects of concern in our planning. References to those papers and summary statements on topics covered are included in this document.

Varying parts of the plan will be updated periodically to stay current with new developments and information.

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RECOMMENDATIONS TO THE LEGISLATURE

Since the Coordinating Board was established in 1965, it has pursued the legislative directive to strengthen the state system of higher education and assure the efficient operation of publicly financed colleges and universities. The legislature has drawn upon the advice of the Coordinating Board and has supported many of its recommendations. The Board would urge the state legislature to consider the following recommendations:

1. State tuition rates should be raised, and the legislature should consider applying the resulting increase in tuition revenue to faculty salary increases.

2. The legislature should consider such contingencies as those set out below in the event circumstances were to develop in future years that would severely constrict revenue for all state programs. The Coordinating Board believes that these and other such options would be preferable to across-the-board cuts:

   a. reduce or eliminate support for off-campus and out-of-district courses;

   b. require institutions to reduce administrative units and positions to follow the pattern set by some institutions;

   c. require community junior college districts to bear a larger portion of the educational and administrative costs.

3. All schools of The University of Texas and Texas A&M University Systems should be included in the Permanent University Fund if it appears the endowment and its income will provide sufficient funds to meet the construction needs of those institutions. These institutions then would not be competing with the other colleges and universities for construction funds made available by the legislature by direct appropriations or from other sources.

4. In order to meet the Texas commitment to excellence in higher education, the legislature should strive to set Texas average faculty salaries above the national average and maintain this position. The legislature should make faculty salary increases its first priority in the funding of higher education. If a reduction by the legislature in the funding requested for higher education is necessary, it should be made in areas other than faculty salaries, even at the expense of special items or other line items in the budget.

5. The legislature should continue to deny any proposals to create additional senior colleges or universities, centers or other units of higher education, as well as any proposals to convert a center or special-purpose institution into a separately recognized college or university.

6. The legislature should continue to deny any requests to authorize an existing upper-level institution to convert to a four-year institution and any proposals to combine a community junior college with an upper-

level institution, center or branch to establish a four-year institution.

7. If teaching hospital costs are to be funded by the state through support for all residencies, special consideration should be given to maintaining strong financial incentives to train medical doctors in family practice and the fields of primary care.

8. The legislature should continue to avoid establishment of a new law school in Texas. If student demands increase, the state should explore expansion of enrollments and the addition of evening programs at existing schools before authorizing a new law school.

9. No additional state funds should be appropriated for the construction of permanent facilities for upper-level centers.

10. A substantial increase in appropriations for research should be considered as a long-term investment in higher education and the economic growth of the state.

11. The legislature should fund the Tuition Equalization Grants Program at the level authorized in the previous biennium in order to assist independent higher education in the state and to increase the freedom of choice of students.

12. To reduce the state costs of remedial courses in higher education, the legislature should consider establishing a statewide test as a condition to high school graduation.

13. State government should avoid a manpower plan for higher education, using instead the approach of providing the best available occupational information to students, counselors, parents and school administrators to permit students to make well-informed career and educational choices.

14. The constitutional provisions on the ad valorem tax fund for construction should be repealed by constitutional amendment to make participants in that fund eligible for state appropriations for construction projects.

15. The legislature should ensure on construction projects, regardless of source of funds, that no university is exempted from review and approval procedures applicable to all other colleges and universities.

RECOMMENDATIONS TO COLLEGES AND UNIVERSITIES

The Coordinating Board recognizes that many of the state's colleges and universities already have taken action for coping more effectively with the slowdown in higher education, in terms of both student enrollments and the availability of funding. Several schools have streamlined administrative structures and initiated program reviews to eliminate certain programs with declining student interest. Some institutions also have instituted campus-wide systems for more effective monitoring of energy usage. The following recommendations are proposed for consideration by institutional governing boards and administrators with the hope of encouraging further efforts among all colleges and universities for strategically meeting the challenges of the '80s.

All Institutions

1. In order to address the increasing costs of utilities, now constituting 12 percent of the appropriations for higher education, institutions should continue to improve the efficiency of energy usage in all facilities through building modifications and improvements in energy monitoring.

2. Institutions should take steps to ensure that appropriate policies and procedures are in place to prevent or minimize the risk of illegal actions and improprieties of judgment (such as those cited on page 15 of this plan) by personnel.

3. Institutions should reevaluate their tenure policies in accordance with the guidelines published by the Coordinating Board and the suggestions made in Dr. William Keast's paper in the companion volume to this plan. They address such topics as staffing plans, criteria for appointment and conferral of tenure, faculty evaluation, professional development and faculty responsibility for an effective tenure system.

4. Governing boards should develop, in advance of their need, policies and procedures for the selection of a new president, with a carefully designed definition of the institution's leadership needs.

5. Progress has been made in overcoming racial and economic obstacles to a college education in Texas. Efforts should continue at all levels within colleges and universities to encourage increased enrollments of minority students.

Senior Colleges and Universities

6. The University of Texas and Texas A&M University Systems Boards of Regents should consider using a portion of the income from the Permanent University Fund to establish endowed chairs in accordance with their established procedures or to use such funds as challenge grants to encourage increased private support. The constitutional endowment thus would be used to create additional endowments in perpetuity for the support of eminent scholars. Since most privately endowed chairs are

in law, engineering and business, the PUF income can be especially useful to bring continuing support to the liberal arts, humanities, fine arts and sciences and other fields not usually supported by private endowment.

7. Each college or university should reexamine its central mission with a view toward tighter focus in the use of resources in the coming decade. Curricula also should be reevaluated to see that they reflect the purposes of the institution, the expectations of the students and the needs of society for the future. In such evaluations, the long-term value of a broad, general education to the society and the students should not be neglected while responding to the short-term employment interests of students.

8. All Texas public colleges should continue to evaluate new program needs in light of reassessment of institutional priorities, cost effectiveness of total academic program offerings and possible need for internal reallocation of resources and reduction or consolidation of programs with low productivity. Expansion of activities or programs should be considered feasible if there are other programs or activities of lesser importance which may be discontinued or if increases in resources become available.

9. Universities with doctoral programs should begin self studies of doctoral offerings with the goal of establishing priorities, reallocating resources and possibly reducing, consolidating or restructuring doctoral programs.

10. New doctoral programs should be proposed only after careful consideration of academic demand, opportunities for non-academic employment, demand on institutional resources, possible duplication and the institution's ability to meet and maintain quality criteria.

11. Institutions likely to be affected by restricted and declining water supplies should monitor direct and indirect effects and take them into consideration in all program and campus planning. Contingency plans should be developed for crisis drought or contamination conditions.

12. In order to encourage new students to consider the advantages offered by several colleges, those universities with large enrollments and rapid growth should consider establishing staggered dates of acceptance notices. Thereby, they would cause students to apply at several schools and at the same time control their own growth without directly denying admission to any qualified student. Encouraging voluntary choices by students among more schools would be preferable to a lottery system or inflexible cut-off procedures to limit enrollments.

Community Junior Colleges

13. Community college administrators and board members should be aware of the marked shift of students and resources toward vocational-technical programs at the cost of academic offerings. This should be closely

monitored to preserve the comprehensive nature of community junior colleges and to avoid an imbalance which could convert them to vocational-technical centers.

14. Community college administrators, board members and faculty members should be especially vigilant to prevent any decline of quality in the offering of courses outside the college district.

15. Community colleges should improve counseling and guidance programs for students intending to transfer to senior colleges. Better use of established core curricula developed and published by the Coordinating Board should be encouraged.

PRIORITIES FOR THE COORDINATING BOARD

In keeping with its legislative mandate to promote the effective use of state resources in higher education through the control of unnecessary duplication in programs, faculties and campus facilities, the Coordinating Board, with the adoption of this plan, emphasizes the priorities listed below for further action. A number of the items have been matters of significant concern to the Board for several years, and our intent here is merely to restate their continuing importance in the next decade. Most of the other priorities outlined were developed in response to the changes in demographic, technological, economic and political conditions which are expected to impact on higher education in the '80s.

1. Formulas should continue to be constantly studied and evaluated:

   - to be certain the system does not motivate schools to lower standards to attract students;
   - to be certain they provide equity in distributing funds while recognizing differences among types of schools and their missions;
   - to be certain they accurately reflect institutional costs; and
   - to be certain they accommodate change and support quality.

2. High priority should be given to statewide reviews of existing programs, beginning with programs at the doctoral level. All reviews should consider both qualitative and quantitative criteria, such as efficiency, quality, cost effectiveness, duplication, need and productivity. Due to high costs and oversupply in many fields, no new doctoral program should be approved unless a clear need is substantiated by such a statewide review.

3. The Coordinating Board should continue to seek a careful balance between its enforcement of accountability on behalf of the state and encouraging independent judgment and experimentation at the institutional level.

4. While some new construction may be needed over the next decade at all colleges, the Coordinating Board should use its review and approval procedures to encourage colleges to move toward repair and rehabilitation of facilities and away from the construction of new buildings.

5. In reviewing proposed facilities projects, the Coordinating Board should take into consideration, as one of the criteria for approval, the utilization of existing facilities during all appropriate hours for scheduled use.

6. The Coordinating Board should encourage and support all possible efforts to improve the energy efficiency of existing and proposed new buildings.

7. The Coordinating Board should prepare to coordinate the development and funding of instructional television and other electronic delivery sys-

tems in higher education and should publish early in 1981 guidelines for the colleges on how to obtain educational transmission capacities under cable television franchises as they are negotiated in college service areas.

8. The Coordinating Board should work with all colleges and universities in continuing to develop programs and approaches to address the state's growing minority populations and to increase their access to employment and study in higher learning.

9. The Coordinating Board should oppose any efforts to change the tenure system which would take Texas colleges out of the mainstream of American higher education.

10. Out-of-state branch campuses and centers proposing to operate in Texas should be required to meet high accreditation standards or be made subject to state review by the Coordinating Board.

11. The Coordinating Board should continue to seek increased cooperation with the military to improve the quality of educational programs, including those offered by out-of-state institutions, on the military bases in Texas.

12. Any unaccredited institution proposing to award degrees in Texas should meet rigorous requirements established and administered by the Coordinating Board.

13. The Coordinating Board should work with the Texas Education Agency and institutions of higher education to define uniform competencies for high school graduates planning to attend college.

14. The Coordinating Board should work with the Texas Education Agency and the institutions to define minimum levels of competency for undergraduates seeking admission to teacher education programs.

15. The Coordinating Board should improve and more actively promote the use of the core curricula for the transfer of credit between colleges and universities.

16. Because of the critical shortage of nurses in Texas, the Coordinating Board should continue to ascertain that nursing educational programs at appropriate levels, including career ladder programs and tracks to provide additional training where necessary, are widely accessible throughout the state.

17. By continuing to support adequate levels of faculty salaries, promoting and encouraging governing boards and administrators to deal carefully with those areas of professional responsibility traditionally left in the hands of faculty, such as standards for student admissions and performance and faculty promotion, tenure and selection, the Coordinating Board should attempt to enhance the morale and professional status of faculty members.

18. Funding of continuing education should be studied, especially to determine whether it can be made fully self-supporting.

19. Through vigorous collections efforts, sound investment policies and similar measures, the Coordinating Board should strive to make the Hinson-Hazlewood Student Loan Program into a revolving fund, thereby reducing the need to sell additional bonds and indebt the State of Texas.

20. The offerings and resources of private colleges and universities should continue to be considered in Coordinating Board evaluations of proposed degree programs or administrative, academic or professional units in public institutions.

21. Temporary transfer of administrative personnel among different schools and with the Coordinating Board for in-service training experiences should be encouraged.

22. Training sessions for administrators and for governing board members should be sponsored or encouraged by the Coordinating Board.

23. The Coordinating Board should take the lead in supporting conferences for institutional representatives on staff planning, faculty responsibility for an effective tenure system, and the management of tenure policies and practices.

24. The Coordinating Board should sponsor conferences of institutional representatives to reevaluate college curricula in terms of appropriateness in preparing graduates for the future. The intent of such conferences would be to facilitate the exchange of information among institutions and to bring about improvements on all campuses.

25. The Coordinating Board should undertake efforts to encourage and increase private support for research in Texas universities.

THE SETTING

PLANNING AT THE STATEWIDE LEVEL

In addition to over 40 private institutions of higher learning, the Texas college and university system consists of 37 public senior institutions under 15 governing boards appointed by the governor and 60 community junior colleges under 47 locally elected boards. When the Coordinating Board was created by the legislature in 1965 to address the need to relate these units to each other, it was granted certain specific authority and assigned certain tasks, but it was given no implied powers. In the years since then, it has become clear that even the specific authority and duties assigned to the Coordinating Board must be exercised within careful limits as to what is possible and acceptable to the schools, their governing boards and the legislature and the governor. If the Board becomes too severe in exercising its specified authority, it will alienate and coalesce the schools and legislators to restrain its activities. On the other hand, it cannot serve as an in-house lobby for higher education in the state government; to do so would cause it to lose all credibility with the legislature and the Governor's Office.

Nonetheless, even within these constraints, the Board has contributed to a stronger system of higher education and to a more efficient use of resources among the schools. The Coordinating Board has had to strive for balance between restraining unnecessary expansion and trying to press for certain changes on the one hand, and defending and justifying legitimate needs of the colleges to state government on the other. The balance shifts as the nature of the times changes. For example, during the period of rapid growth in the late '60s, the Coordinating Board was a strong advocate for expanding higher education. By the late '70s, with enrollment growth slowing, the Board had moved to a position of trying to hold back expansion and limit the ambitions of the colleges. At present the Board's role is a mixed bag: restraint on construction, new units of higher education and new programs and support for legitimate needs, such as faculty salaries.

But the Coordinating Board is not merely a combination of "regulator" for the state and "spokesman" for the schools. It serves as advisor to the legislature and the governor. For example, the Coordinating Board formulas serve as the starting point for all budget requests and hearings, and the legislature and the Governor's Office seek evaluations and recommendations from the Board on "special item" requests, major repair projects and special legislation on higher education. In the end, the principal decisions on planning and developments in higher education are made in the appropriation process. This is more true in Texas than in most states because of the structure of state government, the practice of appropriating funds specifically to each school and making those funds nontransferrable to any other institution, and the highly decentralized governance of the colleges and universities.

It is within this context that we must consider the role of statewide planning for the next decade. The overriding principle for statewide planning in Texas is simply stated: <u>the minimum controls necessary to induce and persuade the institutions to make necessary and effective decisions at the local level</u>.

In order to do this the Coordinating Board must monitor and review institutional planning and even guide it at times by pressing for modifications or denying proposals that would dilute resources or result in unnecessary duplication. In carrying out its duties, the Board must always strive for fairness and equity in treatment of all schools and provide due process for the many constituencies affected by Coordinating Board decisions. It must also be supportive of the institutions by providing necessary information and appropriate guidelines on topics of concern. Where abuses occur or inter-institutional conflicts arise, the Board must at times exercise sanctions or serve as arbiter.

In attempting to permit sound local planning to prevail over centralized control, the Board should permit the marketplace, such as it is in higher education, to function wherever and whenever it can. It has been said that students "vote with their feet" on schools and programs. The job market carries over into student decisions on degree programs and should be permitted to do so. Programs and colleges losing students will have to make adjustments, and they are best made at the local level. Good academic managers will cut overhead and put their funds into improved processes and better graduates. While the Coordinating Board must monitor educational quality and the way management decisions are being made, there is much to be said for letting Adam Smith's "invisible hand" of the marketplace work to the extent it will among institutions of higher learning.

One topic that will require special attention at the state level is the need to protect the independent colleges and universities. A few of them may close due to enrollment declines in the next decade, and the state should not take them over to save them. However, institutions in the public sector should not be permitted to encroach upon the territories and program areas of the private colleges to reduce their own losses of students, thereby causing the private schools to bear a disproportionate share of the demographic decline of young people.

At the statewide level, concern and support for these schools and their roles in Texas higher education should continue. The independent sector is valuable to the public sector and the people of Texas because it is independent. The private schools offer more diversity than the public sector. Some of them can focus on elitism if they wish without having to give in to pressure to become more egalitarian. Some of them have on occasion set the pace on quality or level of funding or guarantees of academic freedom. Some of them can offer education to predominantly minority groups while remaining free from directives or intrusion by the federal government. Whether nonsectarian or church-related, the private schools offer an important option in this country for the expression of independent points of view, especially vis-à-vis government agencies. Moreover, in practical terms we need to recognize that the independently governed and administered colleges in Texas enroll over 77,000 students and award degrees to nearly 20 percent of our graduates each year. Even with declining enrollments, our public institutions cannot absorb those students, nor would the state taxpayer wish to take on the enormous additional cost of educating them.

In summation, as we consider how to plan and supervise the statewide system of higher education in Texas, leadership at the local level must be encouraged and supported. However, local leadership must also be expected to be exercised in ways responsible to statewide and regional concerns and limitations. For these reasons, statewide planning at the Coordinating Board and within the rest of state government will, of necessity, involve both broad concerns about the indefinite future and more narrow concerns about continuing issues and the minutiae of day-to-day operations.

PLANNING AT THE INSTITUTIONAL LEVEL

If state-level controls and supervision are not to become more intrusive, the difficult decisions concerning higher education must be made at the local level. Tough times will require changes. But where resources are limited, it may not be possible to add new activities without eliminating something of less importance than the new enterprise to be undertaken. If the "heavy hand of government" interferes at the institutional level, it will be in part because of failures by campus officials to respond to state-level expectations when resources are getting tighter.

One purpose of this plan is to highlight and identify the developments, trends and issues that will require local responses. This plan sets forth a minimal number of specific steps that should be taken at the state level, in the hope and with the trust that the concerns raised will lead to further action at the local level. This position is taken based on the faith and recommendations of the Carnegie Council for Policy Studies in Higher Education, the Council for the Advancement and Support of Education, other national associations and such respected students of higher education as Lyman Glenny, Frank Bowen, Clark Kerr and John Moseley (who has a paper in the companion document to this plan). However, this plan will be revised and updated periodically, and issues not addressed at the local level will be considered again from time to time for state action.

To say more here on specific topics needing attention at the institutional level would be to repeat what follows, for this document has been prepared for use at the institutional level as well as for members of state government and the Coordinating Board. The legislature cannot mandate quality by law; the Coordinating Board cannot require it by rules and regulations. The quality of programs, the effectiveness of its educational endeavor and the effective use of resources all depend upon what takes place at the institutional level.

ASSUMPTIONS

As this plan was being organized, various categories of topics emerged: problems, issues, opportunities, developments. One group of topics affected all of the other subjects more directly than the other subjects seemed to affect each other. These topics which set the stage for all else in the 1980s are set out below as assumptions about the decade ahead. They form the backdrop against which the issues and developments will be addressed and dealt with.

Inflation

If inflation could be lowered to even half (eight or nine percent) of the annual rate of early 1980 for the balance of the decade, the costs of goods and services by 1990 would more than double. That is, at a nine-percent inflation rate, the 1967 dollar (at an index of 100), which stands at 237.3 in 1980, would be at 562 in 1990. This means a 1967 dollar in 1990 will be worth 18 cents in purchasing power.

However, cutting the inflation rate in half would require rigorous government controls over appropriations and expenditures, particularly at the federal level. Such restrictions in government spending would be reflected in tighter restraint of funds to higher education as well as for all other government and social service programs.

If runaway inflation is not brought under control for another four or five or more years, it may appear that more funds would be flowing to higher education than under a more constrained government fiscal policy. However, since the dollars received would be of continually and even more sharply declining value, higher education would fare no better, and probably worse, than under the more hopeful option that the inflation rate can be brought down substantially.

Impact of Energy Costs on Higher Education

Faculty members on a number of campuses independently provided information which was in remarkably close agreement in projecting increases in energy costs for the next decade. Real costs of energy will increase by three to five percent per year. That is, in addition to the annual inflation rate, whatever that may be, energy costs will increase by an additional three to five percent. If the real cost increase alone is considered, energy costs will be 50 to 65 percent higher in another 10 years. Gasoline will unquestionably cost over two dollars per gallon by 1985, and by 1990 will be close to three dollars.

Another way to look at the costs is to assume a mere seven percent inflation rate combined with a real cost increase of approximately five percent per year. In one decade energy costs would triple. If an annual inflation rate of 10 percent were assumed, costs would quadruple in one decade.

The cost of electricity will follow the same curve and will by 1990 be not less than two to three times its 1990 price.

However, it is not these predictions but the impact of such changes on higher education that must concern us here. Listed below are some anticipated consequences based on the assumption of continuing increases in energy costs:

1. Greater efficiency in the use of buildings will become essential. Improved systems of monitoring energy usage in buildings will become standard on all campuses. Buildings will be remodeled, converted and renovated in order to make them more economical to cool and heat. Sunscreening by plantings, drapes, awnings, tinting, etc., will become commonplace. The few new buildings will be constructed for far greater energy efficiency than were existing buildings. In addition, building usage will be more efficiently scheduled. For example, during summer months procedures such as those at Texas Tech University will be followed to consolidate facilities for faculty offices rather than cooling all faculty office buildings. The scheduling of classroom buildings will follow the same principle.

2. The rural, remote, commuting colleges stand to be hurt most due to increasing transportation costs. Institutions located in large metropolitan areas will, conversely, suffer less. At the more remote colleges, weekend trips will decline, and such institutions will again develop more weekend social activities and perhaps a more studious atmosphere.

3. High transportation costs will result in increased demand for dormitory space. It is possible that when energy costs become sufficiently high, the demand for on-campus dormitory space may stimulate requests for additional dormitories or the conversion of unused campus space to housing facilities.

4. Pressure will increase for off-campus courses taught by local teachers or college teachers transported to locations where groups of students can aggregate at less cost in transportation.

5. There will be increased incentive for the development of adequate television, audio and film presentations of materials to reduce the need for trips to the campus. Efforts may be made to combine correspondence-type courses with traditional instructional systems.

6. Pressures may arise to reduce the length of degree programs, in terms of required credit hours, in order to cut down on transportation costs.

7. There will be increased pressure to reduce the number of class meetings and the number of hours a class should meet for the credit hours awarded.

8. There will be increased pressures for tighter class scheduling in order to permit fewer trips to the campus, reduce instruction to fewer days, assure more credit per trip, provide earlier and later scheduling of classes on the same day, and increase afternoon use of teachers, facilities and students' time.

9. Nondegree courses, adult education and workshops will be vulnerable to a sharp drop in consumer interest as transportation costs put them out of reach. This may apply to evening students as well, as transportation costs to their place of employment require a greater portion of their discretionary income.

Energy Resources

Although the Texas economy is diversified and not dependent upon any one or two industries, it is heavily influenced by the fossil fuels; that is, their discovery, production and conversion. Oil and gas production directly supports the Permanent University Fund, which funds construction in The University of Texas System and the Texas A&M University System. In addition, part of the income from the PUF endowment is used for enrichment of academic, library, equipment and research activities at The University of Texas at Austin and the Texas A&M University main campus.

The sale of energy from fossil fuels indirectly supports much of the Texas economy and provides a significant portion of the tax revenues used to finance state government. The predicted decline in energy resources will be offset in part by the increased price or value of the remaining resources. However, in another decade or two, the effect of the depletion of a finite supply of fossil fuels will be felt in declining tax revenues from this source, regardless of the climb in prices.

Therefore, not only will institutions of higher education be competing with other growing demands for state funds, but also the funds for which they compete will become increasingly limited.

In addition, the Permanent University Fund will reach a point where its rate of growth will begin to plateau.

It is extremely difficult to obtain long-term predictions on resource discovery and when these resource supplies will play out. It is equally difficult to get estimates of tax revenues for the future. However, the U.S. Department of Treasury has projected that Texas stands to gain $33.2 billion in state revenue over the next decade from the decontrol of oil alone. A staff paper was prepared from the information made available and is included in the companion volume to this plan.

Taxpayer Resistance

As inflation continues to drive up the costs of basic needs of the public and as consumers lose more and more purchasing power, resistance to existing or higher levels of taxes will grow. As taxpayers have

fewer discretionary dollars at their disposal and as their savings are eroded in trying to maintain the same standard of living in the face of high inflation, they will increasingly reflect their opposition to high taxes in the political arena.

Consequently, the availability of funding for the existing structure of higher education will become less predictable and increases in funding more difficult to justify to the public. Maintaining the present structure of higher education will become increasingly costly due to its heavy reliance on manpower and upon goods and services that must be bought in an economy of rapidly escalating costs.

The "standard of living" of higher education is dependent upon support from the rest of the society. Although much of the American society will slip behind in its standard of living and the losses vary among individuals, higher education has great difficulty in holding its position in purchasing power and is much slower to regain any losses incurred because of the nature of its funding, as well as its labor-intensive character. Whether losing appropriations due to government belt-tightening or due to funding with depreciated dollars, higher education will not get the share of financial support it has enjoyed in the previous decade and a half. Therefore, it is undenjable that the "standard of living" of the colleges and universities will decline.

Water Resources

Despite good planning and effective conservation efforts, the increases in demand for water due to growth in population, agriculture and industry cause the supply and quality of water to be perennial problems in some areas of Texas. As the demand and use increase in some areas, the supply and quality decline. The supply problem is particularly acute where the water is being mined, such as in the western and southern parts of the state.

Social and economic patterns are deeply influenced by water, which has influenced civilizations throughout history. In Texas, institutions of higher learning may feel the impact of changes in the availability of water. Colleges tend to respond to population shifts, and populations are quickly influenced by water.

On the other hand, the universities provide the research findings and educated persons to address the problems which arise due to water shortages and poliution.

The New York Times in an August 4, 1980, editorial warned "water is being 'mined'--for irrigation, homes and industry--faster than it is being recharged. At current rates of consumption, some aquifers in Texas may run dry in two decades." Two days later, the Wall Street Journal pointed out that the depletion of the Ogallala Aquifer, which extends through much of the Midwest and into the Texas Panhandle, is occurring so rapidly that local economies already have begun to feel some impact of the declining water supply.

Although it is too early to reach any conclusions on specific problems which water shortages may cause for certain colleges, the Coordinating Board did commission a paper on this topic, which is included in the companion volume. That paper, by Dr. Robert M. Sweazy, makes it clear that within the next decade schools in West Texas and parts of South Texas will have to respond to water problems, whether in terms of adapting to population shifts or of educating graduates to deal with problems associated with water as a resource.

The Texas Economy

Texas colleges and universities have boomed with the state's economy, and they will continue to be dependent upon the health of business and industry in the state. On the other hand, as will be pointed out below in sections such as those on Jobs and Graduates and Research, higher education feeds the growth and economy of Texas as well as benefiting from them.

Although following national patterns in some economic sectors and geographic sections, Texas outperforms the national indicators on the whole. As regional trade and service centers, the Dallas and Houston areas are tied closely to national trends. East Texas manufacturing has ties to the eastern part of the nation. The agricultural areas of West and South Texas tie to those areas continuing on to the west or north. The large agribusiness enterprises of the state contribute heavily to the strong Texas economy. Where the Texas economy differs and particularly excels is in oil and gas, petrochemicals and support fields. And these, in turn, pump prime the other economic sectors. All of these fields require college graduates prepared to perform well, and they require research and development to support their advancement and growth.

However, higher education is primarily dependent upon the economic surplus of Texas trade, construction, agriculture and manufacturing. The appropriations for the colleges and universities include almost no dedicated or earmarked funds. Public support must come from the tax revenues and, like all public services, the financing of higher education tracks the general economy of the state.

Forty percent of the Texas tax base is from the sales tax, and this is very vulnerable to recessions and inflation. Almost nine percent of the tax base comes from automobile sales, which fluctuate sharply depending on economic conditions. The state is fortunate that petroleum-related taxes provide 20 percent of its tax base. However, the long-term future of petroleum activities is uncertain.

Prospects are that Texas for at least another decade will continue to outperform the national economy. If federal policies remain unchanged and energy supplies become more limited, national economic growth will continue to lag. Even if this occurs, Texas should, comparatively, do better than the nation as a whole. If the economy were to boom, Texas would be in the lead.

Beyond the next decade, the health of the Texas economy will depend upon further diversification, and this needs to start in the current decade. It is here that higher education can play a major role in helping the state and thereby in helping itself.

While on this topic, it should be noted that enrollments appear to be affected by economic cycles. In the 1969 and 1974 recessions, enrollments increased by higher percentages than in the 1972 and 1976 periods of recovery. It seems there is a group of people who decide to go to college when jobs are scarce and return to work when they are more plentiful.

NEW DEVELOPMENTS

NEW DEVELOPMENTS IN TEXAS HIGHER EDUCATION IN THE 1980s

In the next decade there will be several new developments requiring the attention of the institutions. The topics are not necessarily new, but they have taken a new turn. Some of the more obvious topics, those more unique to the '80s than the two previous decades, are discussed below.

These topics, plus those issues of ongoing concern in the following section, relate in part to the image of higher education. Although polls still show higher education to rank very high in public trust and confidence, there appears to be less agreement on the importance of higher learning than there was 10 or 15 years ago. Undoubtedly this is due in part to increasing costs, opposition to higher taxes, the less apparent economic advantages of a college degree and other reasons discussed elsewhere in this document.

However, in Texas a number of events and disclosures have been damaging to the reputation of individual schools and the higher education community generally: illegal and imprudent investment policies, the transfer of funds between institutional foundations and school accounts, disregard for standard bidding procedures, exorbitant expenditures for presidents' homes, flagrant misuse of legislative intent in scholarship programs to qualify nonresident students for resident tuition, falsified enrollment reports and injudicious and inappropriate use of public funds. These kinds of developments have obviously harmed and will continue to harm higher education in the eyes of the legislature and the public. Such disclosures are not new to higher education, but the numbers of schools, the amounts of money involved and the visibility of higher education now make any such revelations extremely damaging to the image of the colleges and universities. Procedures to prevent such occurrences are known to the schools and should be put into effect. Action by the legislature will follow as a result of failure by the colleges to correct their own deficiencies in policies and practices. Failure to police their own operations will likely result in increased policing by the state and a loss of delegated authority.

ENROLLMENT IN TEXAS COLLEGES AND UNIVERSITIES

Based on projected population, historical college attendance patterns and current trends, the most likely outlook for enrollment in Texas colleges during the period from 1980 to 1990 appears to be a relatively small increase of 46,802 students. The 10-year growth rate would be about seven percent. This slowdown in growth is a marked contrast to the previous decade, when college enrollment increased by 66 percent, or more than 258,000 students.

Actual 1979 headcount enrollment and forecasts for representative years in the eighties are given below for the five broad groups of institutions: public and independent junior colleges, public and independent senior colleges and the Texas State Technical Institute.

	JUNIOR/COMMUNITY COLLEGES		SENIOR COLLEGES			
Year	Independent	Public	Independent	Public	TSTI	Total
1979*	2,289	239,136	73,493	330,869	5,928	651,715
1980	2,266	242,995	74,117	335,394	6,293	661,065
1985	2,155	245,162	74,695	342,805	7,301	672,118
1990	2,049	265,319	75,753	356,363	8,383	707,867
% Change 1980-'90	-9.58	+9.19	+2.21	+6.25	+33.21	+7.08
Headcount Change 1980-'90	-217	+22,324	+1,636	+20,969	+2,090	+46,802

*Actual

SOURCE: Coordinating Board Study Paper 27: Fall Headcount Enrollment Forecasts: Texas Postsecondary Educational Institutions (Revised, July 1980)

Through the mid-1980s, total enrollment in higher education will remain relatively stable--increasing only about 1.7 percent for the five-year period. This slow growth reflects decreases in the number of 15- to 19-year-olds in the state's population mix. During the latter half of the decade, the growth rate will accelerate slightly--averaging about one percent annually. This expected modest increase is primarily attributable to an upturn in the number of 15- to 19-year-olds, reflecting the offsprings of the postwar "baby boom" generation.

Enrollment in the junior/community colleges is expected to remain

relatively stable during the first five years but will increase at an average annual rate of about 1.5 percent after 1985.

In the independent senior colleges and universities, an increase of only 2.2 percent is projected during the 10-year period. Most of this gain is expected to occur during the latter half of the decade. The private junior college sector is the only group expected to lose enrollment, continuing the trend which began during the previous decade.

Total enrollment at the public senior colleges and universities shows a modest gain each year during the 1980s. While the growth rate is slightly higher during the last five years than during the first half of the decade, the difference is not as pronounced for the public senior institutions as it is for some of the other categories of institutions.

These forecasts, by categories of institutions, predict the aggregate fall headcount enrollment for semester-length courses at all institutions. Enrollment patterns for individual institutions are expected to vary considerably. Among the 37 public senior institutions, enrollments at nine institutions are predicted to drop below the fall 1979 levels during the decade. There will be enrollment gains in the 28 other institutions, but only half of them will increase by 500 or more students during the 10-year period.

Thus, while an analysis of expected demographic conditions and college attendance patterns in Texas indicates overall enrollment in the state's colleges and universities will not decline during the next decade, neither will there be significant gains in enrollment. Even the modest enrollment gains which are predicted will not necessarily be realized by all institutions. It is likely that between 1980 and 1985 most institutions will face a period of stabilized enrollment--with some experiencing enrollment declines. Conditions will improve somewhat during the last five years of the decade, but even then only a few institutions can expect significant enrollment increases.

As was done with this plan on past enrollment projections, the Coordinating Board will restudy and update every two years the projections on enrollments.

FUNDING ISSUES: COSTS, FORMULAS AND REALLOCATIONS

Projecting Costs

Enrollments grew by 66 percent between 1970 and 1980. Cost increases due to inflation alone varied greatly, and the Consumer Price Index stood at 11.1 percent for the first seven months of 1980. Appropriations in the decade of the '70s increased by 283 percent from $898.5 million in the 1970-71 biennium to $3.4 billion for the 1980-81 biennium. In 1970, the total appropriations for higher education were 15.3 percent of total state appropriations; in 1980, they were 17.2 percent.

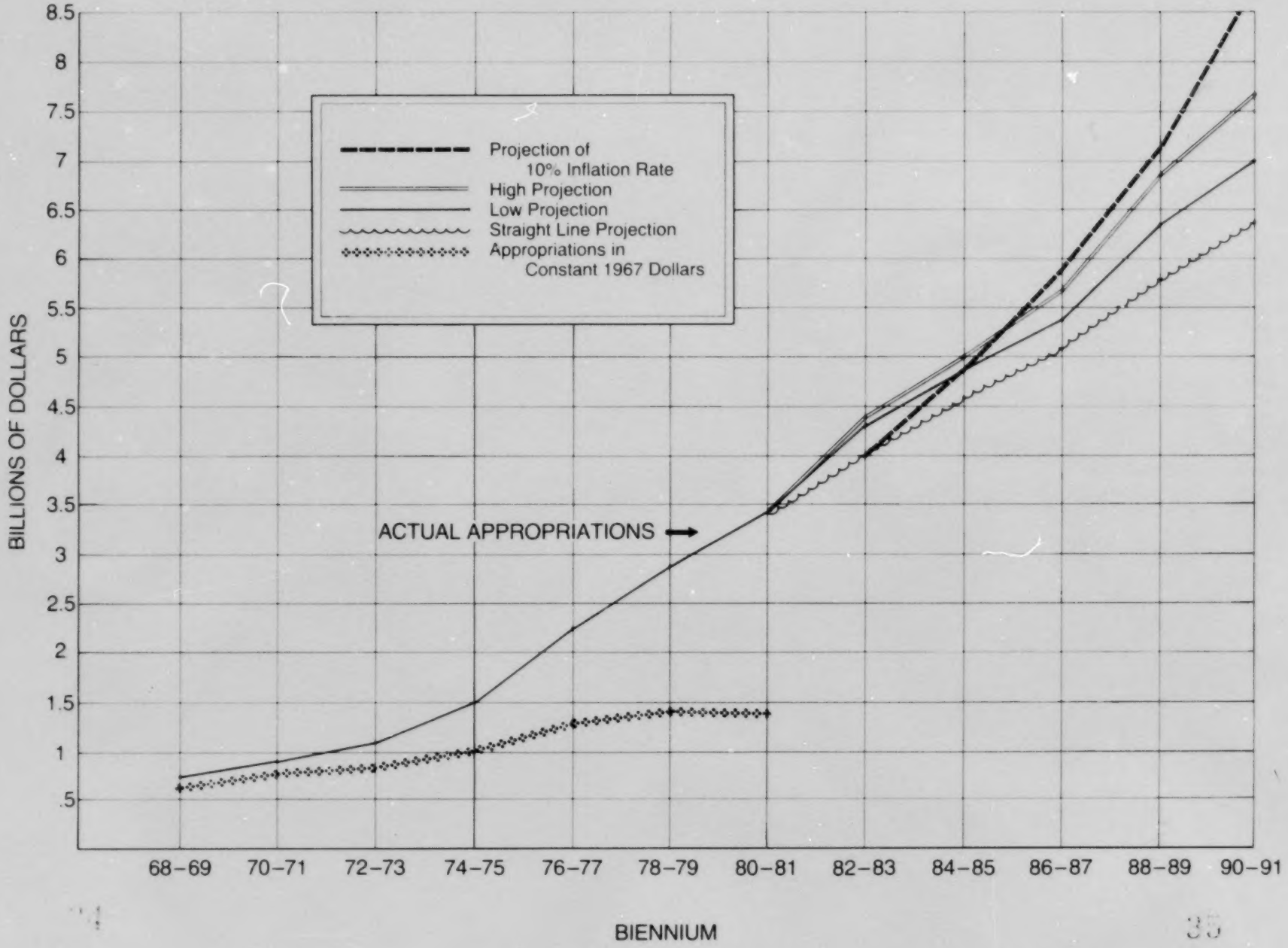
In looking to the next decade, we find that higher education is not likely to follow closely in the tracks of any of the factors cited above. Enrollments will grow by only seven percent, about one-tenth of the rate of growth in the previous decade. Not knowing what total state appropriations are likely to be by 1990, we cannot use a percentage of that figure to estimate future appropriations for higher education.

No one can predict the rate of inflation and how it will affect appropriations to higher education. We dare not project a rate of 14 percent with which we ended the decade; nor can we realistically use the rate of seven percent, which is closer to where we started the '70s. The bottom line on the following chart shows total state appropriations to higher education to 1980 in constant 1967 dollars. This reveals that the largest part of the apparent gain to higher education has been lost to inflation.

That same chart contains four cost projections to 1990, using different assumptions. The lowest projection is a straight line based on the average increases for the past two biennia. This assumption projects that state appropriations would go from the present $3.4 to just under $6.5 billion. It would be possible, of course, to flatten the curve and project a cost estimate of around $5 billion for the 1990 biennium. However, when we consider the top line on the chart, a flattening of the curve seems to be an unrealistic prospect. The top curve is simply based on a 10 percent per year inflation rate compounded over the 10-year period. This results in a projection of biennial costs of over $8.5 billion. It is important to note that this is the curve required to maintain the 1980-81 appropriations at their present purchasing power with no improvement. It does not even take into account the projected seven percent enrollment growth for the decade, nor does it consider what the bottom line on the chart shows, that higher education appropriations have already been on a plateau in purchasing power for four years.

The two curves between the high and straight-line projections are variations developed by the staff. Both curves jump ahead of the 10 percent inflation rate for the 1982-83 biennium by reflecting the Coordinating Board's recommendation for a catch-up in the appropriations for faculty salaries.

BIENNIAL APPROPRIATIONS TO HIGHER EDUCATION



It should be clear from these figures that inflation will be a much more severe problem for the financing of higher education than the stabilization of enrollments. This is because the impression of improved funding may in fact leave the institutions further behind without their knowing it. What is demonstrated by these figures could probably be shown for other major public and private segments of our society, but it needs to be illustrated here to clarify the range of possible future funding levels and what those will mean in the face of continued double-digit inflation.

It is important to consider the magnitude of the figures cited above, that higher education is likely to cost the state from somewhere over $6 billion to as high as $8 billion in tax funds per biennium by the end of the '80s. This tells the institutions of higher education, especially with the slowdown in student growth, that it will be very difficult for the state to maintain the past growth curve. In fact, it will require a major effort for the state to maintain a straight-line increase in appropriations. At the worst, the colleges could find themselves continually losing ground against inflation while appropriations still reach toward a biennial level of over $6 billion by 1990.

These figures tell the legislators that higher education probably cannot be funded at projected levels during the next decade without tax increases, especially in consideration of the other enormous and urgent demands being make upon state government.

The companion volume contains a staff paper elaborating on some of the cost data presented here.

Difficult Choices

The legislature may face the difficult choice of trying to maintain the present system with less money than necessary to assure quality or of reducing state support in some specific areas. The choice would be between diluting the educational effort everywhere or cutting in some places to maintain better support in other places. For example, is it not inconceivable that the constitutional amendment restricting the growth of state appropriations could limit funds available for higher education in the future. Ratified in November 1978, the amendment ties the rate of growth of appropriations from state tax revenues to the estimated rate of growth of the state's economy. If selective cuts become necessary during the next decade, the legislature may be forced to consider some of the following options:

1. Reduce or eliminate state support for off-campus and out-of-district courses (and again treat them as extension courses which must be self-supporting). In 1979, among the public senior colleges, 2,677 courses were taught off campus at a cost of approximately $11.5 million to the state. That same year the community junior colleges taught 5,666 courses outside their taxing districts for which they will receive approximately $5.8 million. Prior to 1972, almost all courses taught off campus (out of district for the junior colleges) were self-supporting, paid for by the students at no cost to the state. A compromising position short of eliminating state support

for such courses would be to reduce the level of state support below that provided for on-campus courses.

2. Increase tuition to require the individual beneficiary of a college education to pay more of the costs, thereby shifting part of the burden of increased costs from the general taxpayer. The burden of resident tuition in 1980 is far less than it was in 1957, when the current tuition rate was established. The $50-per-semester tuition represented in 1957 approximately 16 percent of the total average costs for educating a student. In 1979, it represented about four percent. Although other student fees have increased sharply since 1957,.Texas still ranks within the least expensive three or four states in total charges to resident students attending public institutions. The low public tuition has had the effect of keeping private college tuitions low as well, perhaps benefiting students but holding down income to the independent colleges.

3. Require institutions to reduce administrative units and positions. Some institutions have markedly reduced administrative positions, but others have not followed their example. It would be possible to force institutions to reduce personnel in higher education, based on the example set by some colleges and universities.

4. Require community junior college districts to bear a larger part of the educational and administrative costs now paid by the state, thereby shifting part of the education tax burden to the local level.

Reactions from the colleges to such proposals will be mixed. There will be opposition to these alternatives from varying quarters. Some schools also will want to seek changes in the distribution of the more limited education dollars among the colleges. Schools with small enrollments or with declining numbers of students will urge the establishment of "floors" or minimum levels of support.

In Texas, some schools are continuing to grow while others decline. Subsidization of schools with dwindling enrollments would mean sacrificing assistance to those that are growing. Moreover, when funding is not reduced for those schools that are losing students, the necessary, tough decisions may not be made at the institutional level to reallocate funds between programs at the college level.

Formula Changes

All of the above considerations will bring pressure on the Coordinating Board to alter its formulas. The Board will have to resist pressures to adjust the formulas to keep small programs, small branches and centers, and small colleges alive if they drastically lose enrollments. The Board must be careful that its formula system, which is driven primarily by enrollments and credit hours, does not motivate schools to lower standards merely to attract students.

Although the formula system has its deficiencies and problems and is far from perfect, it remains the best method of financing higher education yet developed. The formula system can be further improved; it will require constant restudy, updating and adjustment to respond to changing times. The formulas should continue to be scrutinized to be certain they provide equity in distributing funds, recognize the differences among types of schools and their missions, and reflect realistically and as accurately as possible the actual cost needs of the schools. Above all, they should serve as a vehicle to facilitate appropriations to the schools without encroaching upon budget-making decisions at the institutional level.

ACCOUNTABILITY, MANAGEMENT EFFECTIVENESS AND TIGHTER GOVERNMENT CONTROL

With higher education having grown as large as it is and as costly as it has become for states to maintain, it is not surprising that legislatures and agencies across the nation are more closely scrutinizing the use of funds and the outcomes of expenditures. Government overview also has increased as enrollments have begun to decline and the economic value of a college degree has come into question by some graduates, as well as the general public. Many of the topics addressed in this plan are those on which college administrators are being asked to explain and justify their actions.

Most administrators already have taken effective steps to improve management of university support operations; that is, physical plant management, nonfaculty personnel systems, investments, supplies acquisition and inventory, food services and bookstore operations, printing, motor pools, security systems and administrative services. These activities and operations are manageable by the traditional techniques of business. Further improvements can and will be made as resources become even more restricted and prices continue to rise.

The management of academic affairs is, however, a more difficult and less tangible task. Educational content, curricular design, admissions standards, student performance criteria and peer group evaluation are all traditionally and properly within the purview and at least partial control of the faculty. Changes in policies and procedures on any of these depend upon faculty participation and discussion and in many cases upon their consent. To alter this practice would be to eradicate the very process that makes a university different from any other social institution and destroy our universities as we have known them.

Successful college administrators know how to bring about change through--and at times in spite of--this process. It is important to appoint people capable of working in the collegiate setting, persons who can direct both the business operations and the academic operations of the university.

College presidents and their boards of regents must show they are getting more for the dollar every year. Yet there is not a general understanding in government and among the public of the kind of management required of the academic component of a university. Better training of chief administrators and more experience will help. The paper on leadership by Dr. Joseph Kauffman in the companion volume helps clarify the nature of the job required.

One area that will require attention at the institutional level is the maintenance of degree programs and departments with declining enrollments. Careful choices and decisions will be needed as to which programs or schools should be subsidized as their enrollments decline. Not all classics departments or language departments can be forced to close, but not all can be kept open. Minimum support of some programs basic to a core education will be required. But some marginal programs not essential to the centrality of the mission of a college should be permitted to die, based on student rejection of those fields. The same may occur in relation to entire colleges or schools.

Another task of the highest importance to every school is the evaluation and tightening of the focus of the mission of the institution. In a time of declining resources this will be necessary to prevent the dilution of quality.

There is no question that accountability to the state government will continue and perhaps intensify. But in defense of ongoing institutional efforts, it is important for all components of the centralized government, including the Coordinating Board, to recognize that, pushed too far accountability begins to conflict with the institutional mission. The demands of increased accountability consume time and resources that might be devoted to accomplishing the mission of the school. In requiring continuing justifications, excessive accountability encroaches on leadership, increases the risks attendant to creativity and innovation and limits discretion. Nothing ventured, nothing gainsaid.

Related to this, of course, is the increasing burden of reporting. It seems that often the answer to not being able to decide what to do about something is to require another set of reports on the topic. The extensive reporting required as a result of the legislative act on teaching workloads is one example.

Accountability will be with us indefinitely, but care must be exercised to see that it does not displace or substitute for the mission it was created to evaluate.

INSTRUCTIONAL TELEVISION

Although it has been predicted for over 20 years that educational television was suddenly going to revolutionalize all teaching and learning, it has been slow in developing. Now it does appear that the technology has been developed. More important, however, is the fact that the extremely high costs of the delivery systems for instructional programming will now be at least partially piggy-backed on the massive investments in commercial television. The franchises are so valuable and are of such a monopolistic nature that they are being treated as a quasi-public utility. Consequently, the public bodies awarding the franchises will require that from the multiple channels available through cable systems and satellite broadcasting some capacity be set aside for educational and public service use.

With the major installation costs picked up by business investments, and with the new technological capacity for transmitting dozens of discrete programs over the same cable connection, the potential for instructional television will be complete. The only two elements missing will be the software--that is, the programs of study--and the organizations to schedule, broadcast, manage and operate the programs. It is possible that there could be a stampede among colleges and universities to fill both of these needs.

There is the possibility for institutions to generate substantial income from instructional television, depending on how enrollments and credit hours in television courses are financed, as well as how the programs produced by a school are marketed to other schools across the nation. The incentive of new income in terms of pressing financial needs could result in the development of high-quality programs, replacing much of the classroom lecturing that now occurs. However, this monetary incentive could also result in extensive duplication and waste if too many schools seek to enter the market. The production of one high-quality course can cost as much as $300,000. But the course can be used repeatedly by the producer, as well as by those schools purchasing or leasing the program. The original cost may be recovered, along with significant profits to the producer. On the other hand, high risks will be incurred if similar programs are produced by others or if markets for expensive programs do not materialize. Unless start-up costs and original investments can be recovered and used as a revolving fund, money will not be available to produce new programs or replace obsolete programs.

The growth of instructional television will lead to new and difficult policy questions:

- How much of the cost of instructional television should be paid for from the public purse?
- Should every credit hour generated by a television course be funded at the same rate as those in the traditional campus setting? What changes in the formula system would be appropriate to accommodate such courses?
- If programs paid for by the Texas taxpayers are sold or leased out of state or to private colleges, is the state entitled to part of the income or should such income be required to offset continuing state support? If so, who monitors the bookkeeping; who decides what portion of the income the state should take into account in determining continued funding?

- If start-up funds are needed, how should they be distributed and how long should they be maintained? How does the state ensure that start-up funds for various schools are not wasted to produce duplicate courses?

- Will government insistence upon accountability of the funding so cripple the public institutions' efforts that all production is taken over by private enterprise? Should the production of course programs be left to private enterprise? If so, what are appropriate institutional policies for faculty members who augment their incomes by assisting in the preparation of such commercially produced programs, particularly since those programs would be displacing many faculty in the traditional classroom?

- Would centralized government planning, allocation of funding and assignment of subject areas for production be preferable to a laissez-faire approach permitting schools to enter the field as they choose?

- How should the state control out-of-state programming on educational stations within the state? Should the state control such programming? Can the state legally control degrees and programs offered by out-of-state schools over television?

These are only a few of the policy questions that will be faced throughout the nation within the next few years. Besides not having answers to these kinds of questions, no one knows all of the questions to ask. We will learn the questions only as the deficiencies become apparent and the abuses attendant to profits and competition among schools become evident.

Instructional television may present the states and all institutions of higher education with the greatest challenge to coordination that has yet existed.

Delivery systems will include microwave transmission (from point to point by dish antennae), telephone lines, land-line transmission, "cable" distribution, satellite signals, videocassettes and videodisks (capable of being played on a home set) and lecture and response systems at remote locations, all capable of inter-connections. These delivery systems can be linked to computers, library catalogs, microfiche reproductions of libraries or even entire art galleries, input terminals to permit personal interchange with the program on the equipment, programmed microprocessors and machines that can produce hard copy. Attendant to all this, of course, are copyright provisions, financial contracts on the use of materials available on the equipment and other legal perplexities.

The technological capability is present, the energy crisis will reduce mobility and provide strong motivation to use the new system, and the major costs of the delivery systems will be borne by the commercial networks and stations. A marked growth in instructional television, in quantity, quality and sophistication, will occur even if we do nothing to encourage it in Texas and even if we resist it. The issues involve how rapidly it will develop, whether we will let it develop without coordination and whether we will wait to let those in other states introduce it into Texas.

There is one area that needs immediate attention by the Coordinating Board. This is to provide guidance to all colleges and universities about how to be certain that provisions on awarding of a cable franchise in their cities maximize the benefits to the public in providing educational channels. Failure to obtain such provisions when the franchise is granted may result in a long-term loss of educational opportunities for the public and the institutions. Much is at stake, and the schools need to be alerted on how to protect their interests.

It is too early to propose answers or even to promote other specific proposals for dealing with the new challenges of instructional television. It is clear that the single development having the greatest potential impact on higher education in the next decade is instructional television. This topic will require special attention by the Coordinating Board, institutions of higher education and the legislature in the next few years.

CONSTRUCTION SLOWDOWN

The number of new construction projects on Texas campuses is likely to decline in the 1980s--even among schools which have funds available for additional facilities--as a result of stabilizing enrollment, off-campus teaching, escalating utility costs, increasing custodial and maintenance overhead and the current underutilization of facilities. The greater need in this decade will be for remodeling, rehabilitation and conversion of existing facilities. Most of these projects will be necessary to accommodate changing uses of space, but some will involve modifications to conserve and reduce energy usage.

A staff paper on this topic in the companion document expands on these and related points.

Of particular concern during the next several legislative sessions will be the consideration of changes in the two constitutionally established funds for college construction.

Ad Valorem Tax Fund

Since the late 1940s, 17 universities have received funds from a statewide tax on property to be used exclusively for new construction, land acquisition and equipping new buildings. The 1947 constitutional amendment creating the fund established a tax rate of five cents per $100 assessed value; the tax was raised to 10 cents per $100 in 1965. As a condition to participating in this fund, the 17 universities were thereafter prohibited from receiving state appropriations for any of the purposes provided for by the fund.

The ad valorem tax fund, which had been providing up to $49 million per year, was nullified in 1979, when the assessment ratio was reduced to .0001 percent. In effect the fund was abolished. But the 1979 legislative action has been challenged as unconstitutional.

Even if the Texas Supreme Court revitalizes the fund, there would still be several problems. At least seven new institutions have been established since the state property tax fund was created, and they must rely on direct state appropriations to meet building needs.

In addition, the tax funds can be used only for new construction, which is no longer the greatest facilities need of the schools, as pointed out above. On the other hand, if the challenge to the legislative action is not overturned, the special ad valorem tax fund should be repealed by the voters. Leaving it in the constitution in its vitiated form will prohibit any of the 17 participating schools from seeking any appropriations for such new construction as needed from time to time.

If the ad valorem tax is abolished, the legislature will have to consider how construction at most colleges and universities will be funded

in the future. The legislature could create a new dedicated fund for construction and remodeling for all schools or it could review and act on every building proposal requiring state funding.

Permanent University Fund

The other constitutional source of construction funds for five academic institutions is the Permanent University Fund.

The endowment consists of 2.1 million acres of West Texas land and the income from oil and gas extracted from those lands. Currently the value of the endowment is over $1.1 billion, and the annual rate of growth is $180 million. It is estimated that the annual rate of growth will increase to approximately $200 million per year in the 1983-84 biennium. The annual income from the fund is estimated to be $93 million for fiscal year 1981 and will increase to $108 million for fiscal year 1982 and $125 million in fiscal year 1983. This income can be used for retiring bonds for construction at the five academic schools as well as two medical schools and other special-purpose units in The University of Texas and Texas A&M University Systems. Income from the endowment not required to retire bonds may be used for academic enrichment at UT Austin and the Texas A&M University main campus, but not at any other schools for that purpose.

If this fund continues to grow, as it is almost certain to, other schools outside those two systems will want to share in the funds, particularly if the ad valorem tax fund is abolished. The Boards of Regents of The University of Texas and Texas A&M University Systems have proposed including all of their components as eligible PUF participants. Even within these two systems, which have institutions growing faster than most other schools, the greatest funding need is for academic excellence, not construction of facilities.

COLLECTIVE BARGAINING

Collective bargaining in the past has not been an issue of central concern in Texas higher education. However, several factors indicate increased chances for its development in the state's colleges and universities in this decade. Whether collective bargaining comes to Texas depends on a number of things, not the least of which is the response of the legislature, governing boards and administrators to the needs and expectations of college and university faculty.

Before collective bargaining would be permitted on Texas college campuses, the state legislature would have to authorize public employees to organize for collective bargaining purposes. Already a number of the organizations which serve as collective bargaining agents in other states have visited Texas campuses. These include the American Federation of Teachers (AFT), affiliated with the AFL-CIO; the National Education Association (NEA); and the American Association of University Professors (AAUP). However, many faculty members in Texas, like their colleagues in other states, oppose collective bargaining in that they believe unionization results in the loss of professional status. They also fear a loss of shared authority between faculty and administration. Moreover, faculty members have not historically identified with trade unions.

However, as in other states, faculty members, joined by public school teachers, could begin to push for authorizing legislation to unionize if their dissatisfactions continue. The principal concern at this time has grown out of inflation. Although no teacher at any level has entered the profession with the expectation of high salaries, teachers and faculty members do feel that they should be adequately rewarded for their important role in society. Their feelings of dissatisfaction grow as they see their wages drop below those of skilled and even unskilled workers, particularly when those workers become unionized. In the universities, there are questions beyond low salaries: faculty involvement in university governance, grievance procedures and academic freedom.

In addition to these pressures from the faculty members themselves, there is some speculation that the new Department of Education may use the power of the purse to encourage collective bargaining in all educational areas, regardless of state law. Faculty on more than 650 college campuses across the nation currently are represented by collective bargaining agents. Eighty-five percent of those institutions of higher education are public.

In a paper in the companion volume to this plan, Dr. Milden J. Fox, Jr., elaborates on the points above. He further states that urban institutions located in areas with strong union-oriented political bases may be subjected to increasing pressures to bargain with the faculty. Faculties at two-year colleges, in particular, with lower salaries and fewer guarantees of tenure and academic freedom may be more receptive to unionization. The combination of these forces could induce Texas faculty to join efforts for seeking the necessary enabling legislation for collective bargaining. In fact, the September 1980 issue of Texas Academe, published by the Texas Chapter, American Association of University Professors, suggests that collective bargaining may come to the state's colleges and universities by 1985.

However, prompt and appropriate response by public policy-makers and administrators to the principal concerns of the faculty should ameliorate these conditions, thereby avoiding the problems associated with unionization of college and university faculties.

ISSUES OF ONGOING CONCERN

ISSUES OF ONGOING CONCERN

Most of the issues in this section are not new but are topics of continuing interest. Also, most of them relate to the question of quality in our institutions. Some educators say quality cannot be defined; others tie it to the reputations that schools have among those who should know what is going on nationally in higher education. Still others would say quality can be measured by prestigious faculty, exceptional students and resources, especially money. Another view is that quality depends on the outcomes, what the graduates amount to. The most recent theory is the concept of measuring quality by the value added to students in terms of knowledge, personality and career achievements.

None of these approaches is entirely wrong, but neither is any single one sufficient standing alone. A university encompasses such a variety of activities that quality rankings based on only one dimension of performance are inadequate.

The primary common measure of quality is applied to the students. Alexander Astin rejects all of the approaches above and suggests, from research on learning, that quality can best be improved by rapid feedback to students on all learning performances and to teachers from students on their instruction. He suggests that this will motivate more "time on task." The time spent in learning is directly proportionate to what the student learns, which should come as no surprise, but seems to be a novel idea to some.

However, the state can do very little to assure quality on the bases of any of those measures, except to provide more money. All other factors depend primarily upon what is happening at the institutional level. Quality must be generated at the institutional level from the leadership and resources available there. As financial resources become more limited, action at the institutional level will become even more critical in reaching or maintaining quality in higher education.

It follows, however, that as the established Texas institutions pursue quality they should be protected from the competition of out-of-state colleges interested primarily in recruiting students and collecting their tuitions and fees. Many out-of-state colleges wish to extend their operations into Texas under the guise of nontraditional education. They assert that Texas schools are not responding to the needs and wishes of all potential students.

Instruction on the military bases is another area in which out-of-state institutions can earn additional revenue to compensate for the loss of students on the main campuses. Texas has only one institution, a public community junior college, involved in such activities outside this state. Texas colleges have refused to abandon accepted practices and standards to try to compete with the stripped-down programs of many out-of-state schools operating on military bases.

The state should continue to support its institutions in upholding their standards. Rigorous requirements should be met before any unaccredited school

is permitted to offer degrees in Texas. Out-of-state schools should meet high standards of regional accreditation or be subjected to state review before being authorized to offer degrees in the state. Discussions should continue with the military services to try to get them to realize that lowering standards for military base courses is not in the interest of any military personnel or the colleges.

LEADERSHIP

College and university administration is becoming increasingly difficult and less attractive as a career. Internal matters difficult to control and external matters beyond control both will require even stronger leadership in higher education in the future than in the past. All of the issues set out in this study converge upon the presidents and the governing boards and their staffs.

The combined effects of inflation and constricting enrollments and funding require tough decisions on reallocating resources. Gains in some areas are felt as losses in others, faculty morale suffers, and the president's leadership comes into question. In such circumstances collective bargaining would be the final step to separate the administration from the academic community and remove one of the president's last ties to the faculty. With collective bargaining, presidents who formerly spent at least part of their time advocating faculty interests would be looked upon by faculty as adversaries at the bargaining table. Governing boards and legislators, however, would view them as disloyal for supporting requests to benefit the faculty.

The challenges to leadership under current circumstances become overwhelming: how to maintain collegiality, achieve participatory decision-making, sustain high motivation and morale, retain loyalty to the institution and operate a solvent and well-managed school. The expectations strongly pull the presidents in various directions. They have to give and deny or take away funds selectively; they have to show they can be tough in handling those who rebel in the face of unpopular decisions; they have to respond to demands for accountability and better management from at least three levels of governance; and they must be the principal spokesmen for the faculty and needs of students, to mention but a very few of the many expectations placed upon the presidency.

Students of organizations know that the quickest way to change any social institution is to change its leadership--by forcing redirection or by bringing in a new person. Traditionally, new college leaders have been selected from the ranks by those in the ranks, and they acquire on-the-job training as they progress through various levels of administration. There are limited opportunities for formal training of college and university administrators.

In the same way, there is no formal preparation of persons for membership on a board of trustees. They often self-select themselves to run for local community college boards or they may be urged to seek office by others in the community. Membership on the boards of four-year schools is by gubernatorial appointment.

As policy-makers, members of governing boards as well as their president exert leadership. However, the most important single responsibility the boards have is to select a strong and appropriate leader and to make the leadership of the person they select legitimate and respected. For the most part the board members should support their president. If not, they should

replace him, but they should not attempt to do his job, interfere with his authority or weaken his role by overriding his decisions or frequently rejecting his recommendations.

In the next decade the demands upon leadership in the chief executive office and on governing boards will become more critical. Better understanding will be essential to grappling with the issues facing higher education: the need for responsible, yet independent, decision-making focused upon the needs of the institution; the need to understand problems beyond the parameters of the schools they represent; and the need to examine the very nature of how the chief executive officer and the governing boards do their jobs and how they must relate for mutual benefit and to foster the welfare of their institution.

Training programs, better on-the-job experiences, orientation sessions, seminars and other formal and informal arrangements for presidents and board members will be needed at state and institutional levels.

The companion volume to this report includes a paper by Dr. Joseph Kauffman for the Board which summarizes the nature of leadership in the next decade and explains how urgent it is that this topic receive more attention.

TENURE

The Coordinating Board has adopted and published guidelines on academic freedom, tenure and responsibility suggesting that colleges and universities adopt rules and procedures which balance the obligations and commitments of the institution against the obligations and commitments of the faculty members. The guidelines attempt to assist the institutions in establishing and following procedures that will keep them out of difficulties with their faculties and the courts. Mutual expectations also are set out between the administration and the governing board on the one hand and the faculty on the other. The Coordinating Board's guidelines further recommend desirable procedures and policies that would put all possible actors on notice as to how the other actors are expected to behave in the event of a confrontation.

The 1979 guidelines, which revised the Board's 1967 policy, were adopted after four years of hearings, committee work and numerous drafts. Although they depart in some ways from national procedures, the Board's guidelines are consistent with procedures and policies commonly accepted for institutions of higher education across the country. Texas colleges and universities which do not follow the guidelines are likely to find themselves very seriously handicapped in recruiting top-level faculty.

Criticisms of tenure for faculty members are frequent. The best protection against any legislative changes which would take "Texas institutions of higher learning out of the mainstream of American higher education"* rests with the institutional administrators and faculty members. They must work together to make the present system work effectively, including prompt action to dismiss tenured members for good cause. In addition, they must avoid the pitfalls that can occur under an unexamined tenure system. Dr. William R. Keast's paper in the companion volume sets forth an extensive evaluation of the tenure system and lays out specific recommendations for the schools and the Coordinating Board on this topic.

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*See W. R. Keast in the companion volume.

FACULTY SALARIES

Faculty salaries in Texas public senior colleges and universities clearly declined during the 1970s as the gap widened between Texas and national averages for faculty pay and as purchasing power of Texas faculty continued to dwindle. In 1976-77, average faculty salaries for professorial ranks in the state were $370 below the national average; by 1979-80, the gap had widened to almost $1,500.

While it is true that inflation has hurt all wages and salaries, faculties, compared to nationwide averages for all employees, have slipped behind much faster and further. In a paper commissioned by the Board entitled Lost in the Index, Charles R. McKnew, Jr., shows that during a 10-year period when Texas faculties lost 14.8 percent in purchasing power, the average worker nationwide lost 1.6 percent. In recent months all groups have continued to lose purchasing power.

In preparing formulas to serve as the basis for appropriations requests to the legislature and the governor, the Coordinating Board took these figures into consideration. Recognizing that neither the 15-percent loss over the previous decade, nor the 7.5-percent additional loss in 1979-80 could be recaptured, the Board did feel that the 1980-81 losses should be included as a catch-up in future appropriations for faculty salaries. The Board also recommended that the faculty be kept on the current inflation curve to help prevent the loss of faculties to other states or to business and industry, as well as to stop further erosion in the standard of living of faculty members. In several fields, such as engineering and accounting, shortages of faculty members already are being forecast as salaries in private enterprise continue to attract talented graduates. Concerns have been raised about the limited number of students choosing to pursue doctoral degrees in those areas for careers in academe to train future generations.

When the formulas were adopted by the Board in January 1980, the inflation rate was 12.6 percent. In the intervening months, it hovered around 14 to 14.5 percent before beginning to decline in July; the latest figures show inflation at 12.7 percent (August). The position of the Coordinating Board was that the legislature would consider whatever rate prevailed at the time it would act on appropriations.

The funding required to bring faculty salaries more in line with the national average and to restore lost purchasing power will create substantial pressures on the state budget. It should be remembered, however, that rising prices in the general economy also are generating more tax revenue for the state through the same taxes and tax structure. In addition, the portion of total state appropriations to public senior colleges allocated to faculty salaries decreased from 54.2 percent in 1967-68 to 42.1 percent in 1979-80.

The overriding concern of the Coordinating Board is that substantial increases in faculty salaries should be the priority concern of the legislature in its attention to higher education when it convenes in January 1981. As this plan is being prepared, the Coordinating Board has an ad hoc committee at work to monitor and evaluate further the need for faculty salary increases for 1982 and 1983.

RESEARCH: ITS IMPORTANCE FOR TEXAS UNIVERSITIES AND FOR THE STATE OF TEXAS

University-based research has both economic and educational values.

The three functions often ascribed to higher education--teaching, research and public service--are not separate but interdependent and complementary. Research is a basic component of good teaching, the source of new knowledge and the means of producing scholars to carry on the work of expanding knowledge. The habits of mind necessary to function well as an educated person are also those fundamental to research: curiosity, the ability to ask relevant questions and the competence to find ways to progress toward answers. A good teacher develops these traits in students and exemplifies them in the approach to the field of study. Thus students and teachers are mutually involved in knowledge development. This process and interrelationship is especially characteristic of and fundamental to graduate education but can and should occur at all levels.

Public confidence in the ability of research to solve problems is high; yet there is ambivalence about the support of research in universities. One reason is the widespread, if ill-founded, impression that research competes with rather than contributes to the achievement of good teaching. Another source of reluctance to commit public funds is the inability to visualize the possible long-range benefits inherent in the basic research characteristic of much of the university-based activity.

Research dollars spent within a state confer many economic benefits. The most obvious and immediate is the employment on research projects of a variety of personnel whose salaries are a direct contribution to the economy of the state. Research projects usually require the purchase of equipment and supplies--another direct contribution to the economy.

Expenditures for research in public universities in Texas have been steadily increasing, but the major increases have had to come from federal agencies, private nonprofit organizations, private corporations and other sources. It is important to note that the state appropriations which have been provided are being used effectively by the institutions to bring in many additional outside dollars for research.

The cost of university-based research, however, is only a small proportion of expenditures for research in the United States. For example, in 1977, industries in this country spent $30 billion on research; in Texas, industry spent $958,000,000, or three percent of the total for the nation. This is an extremely small percentage of the total research expenditure for the third most populous state. Texas R&D expenditures clearly need a push from more university research.

Universities tend to do basic research; that carried on by private industry is more likely to be directed toward an immediate use. However, the two concepts of research, basic and applied, are by no means mutually exclusive; they complement each other, and both are carried on by university as well as industrial personnel. It is not surprising, therefore, to find the growth of high-technology, knowledge-based industry occurring most

frequently in close proximity to universities. The general economic health of the State of Texas results in part from the resilience resulting from the high-technology industries which have developed here. Petrochemical, space, computer and electronics industries, for example, are dependent upon university research capability and highly trained personnel.

Discussions of the economic importance of research tend to focus on scientific research and its technological applications. Less immediate and dramatic benefits accrue to the state and nation through research in the humanities and social sciences. Such studies focus on the solution of social, economic, environmental and educational problems, many of which were attributable to rapid changes brought about by technological developments. Certainly not the least of the benefits of research in this century has been the application of social and scientific research toward the improvement of the health and well-being of the American people. The importance of research is examined in greater detail in a paper by Eldon Sutton in the companion volume to this report.

If university faculty are to keep up with developments in their fields, to contribute to expanding knowledge and to train students as participants in the research process, they must be provided the means to do so. Although funding for research may appear to be very costly when considered as an isolated expenditure, the state dollars spent for this purpose are a long-term investment, returning inestimable educational and economic benefits to the state.

COLLEGE CURRICULA FOR THE 21ST CENTURY

If we knew what the next several decades would bring, perhaps we could design a curriculum for all students to prepare them for life in the next century. Without that foresight, however, the best we can do is

- to encourage sufficient diversity among and within the colleges to assure that the mix provides opportunities for the best education possible;
- to permit students to enroll in programs of their choice, rather than limiting their options by government dictates or restrictions to fit a manpower plan; and
- to encourage each institution to identify and make available the curricula which would appear to be the most practical, meaningful and beneficial to its graduates.

The first two, diversity and freedom of choice, seem fairly well guaranteed in an open society. However, the third offers a major challenge to our colleges. We know that the transmission of job skills will not be sufficient. Most would agree with George W. Bonham's comment on the Harvard core curriculum debate: "...(W)hat we are putting out is a legion of technocrats and specialists, quite unprepared to deal and survive in a world that defines civic competence in ways unspecified in (for example) the biology or law curriculum."

Yet most students strive primarily to make themselves economically useful and marketable. Although this is essential in a productive economy, they also need to function as members of society, and they will need to be as self-sufficient as individuals as possible. Preparation for interchangeableness of persons between jobs is only one responsibility of higher education.

Man remains basically unchanged over time, even having emerged only in the past few thousand years from the primitive societies of the Stone Age and even having passed through all the many forms of civilization since. Within this century alone, man has intensified immensely the complexity of life. And he has made knowledge more manageable for learning and understanding by dividing it into segments. But complexity of life and segmentation of knowledge do not define the content of education to provide graduates who can function in and cope with a changing and unknown future. We seem to believe our times are so different that we can safely continue to sacrifice the study of what has been commonly of value to men and women in the past.

There can be no single pattern for all schools to follow in developing curricula to meet the future needs of today's students. Each college needs to evaluate and reconsider its programs and curricular options. Several items should receive attention:

- necessary skills, for learning as well as for working;

- essential competencies to communicate and be communicated with (that is, writing, speaking, reading, listening, clear and critical thinking and computational abilities);

- basic understanding

  of forms of government, economic systems, cultural forms, history of mankind,

  of how the universe and our world and the elements in it work and interrelate,

  of the individual and how he or she functions, mentally, physically and culturally,

  of some of the works most valued by mankind over time: literature, music, art, dance, drama, and

  of how knowledge and understanding are acquired and extended by man;

- fundamental attitudes toward reason, morality, knowledge and leadership; and

- desirable awareness, sensitivity and tolerance.

This list is certainly not exhaustive, but it illustrates the kinds of issues that will need continual evaluation to determine the appropriateness of a college education to the future needs of the students. Clark Kerr defines the curriculum as "...nothing less than the statement a college makes about what, out of the totality of man's constantly growing knowledge and experience, is considered useful, appropriate, or relevant to the lives of educated men and women at a certain point in time."

We may know that the next century will bring interlocking communications and learning systems of computers, media and data storage within the grasp of most individuals. We may anticipate the compounding of complexities and problems that already seem unmanageable at times. But none of this tells us what the individual needs to be content with himself, what society will need to remain free and responsible, or what jobs we should be training students for. The educational results and the "product" in terms of graduates will have the best chance of fitting the needs of all if the process and content of education are continually evaluated.

The institutions need to monitor and restudy their curricula to focus on the full needs of students for life in the next century. It may be useful for the Coordinating Board to sponsor conferences for institutional representatives to encourage such evaluations of curricula and to facilitate the exchange of information among colleges and universities which have undertaken such reevaluations.

These issues are explored further in papers by Dr. Christopher Dede and Dr. John Moseley in the companion volume to this report.

ARTICULATION

In the language of education, articulation means moving from one level of institution to another--from high school to college, from junior college to university, from university to graduate or professional school. A variety of problems may arise when students make the transition from one level of schooling to the next. Some of these problems are costly to the state, most of them are troublesome to the institutions and all of them are frustrating to the student. Therefore, it is imperative that planning for the 1980s address the issue of articulation and seek solutions to its problems.

High School to College

There is a wide range of difference in the resources and instruction of the high schools graduating students who enter Texas colleges and universities. Differences also exist in the selectivity or level of expectation among the institutions of higher education. The frequent mismatch of student preparation with college admission requirements creates an articulation problem for both students and institutions.

Many conditions in today's high schools contribute to the problems of articulation. In a report to the Coordinating Board, Dr. Hilmar Wagner cites poor quality of teachers and teaching, inappropriate curricula, lack of discipline and a loss of respect for colleges and other public institutions. To strengthen articulation between secondary and higher education, he recommends greater support for recognizing merit among teachers, changes in curriculum and graduation requirements, improved counseling, improved teacher education programs in universities and better communication between the schools and the colleges.

Students who are inadequately prepared for college work may be admitted conditionally to a college or required to take remedial work before enrolling in college-level courses. In some cases, the students lack adequate knowledge in one or two subject fields, often because the necessary courses were not taken or were not available in the high school they attended. More troublesome are the deficiencies which affect student performance in all subjects.

Other articulation problems arise in efforts to place students into curricula at levels appropriate to their educational needs. Few schools have established or published competencies to be acquired by students in their courses. Consequently, the range of skills possessed by students who have completed similar programs of work in different schools is very broad, and students with "similar" backgrounds may or may not be prepared to cope with the courses in colleges. This issue could be addressed by identifying entry-level skill criteria, particularly for beginning-level courses or entry into particular program areas. A pre-enrollment testing and advisement program could diagnose and prescribe remediation of skill deficiency areas and recommend proper entry-level courses.

Another articulation problem occurs when entering freshmen are placed in classes which duplicate material they learned in high school. To avoid

repetition and waste, students who may have mastered some of the subject matter taught in college should be advised of the College Level Examination Program, the Advanced Placement Program of the College Entrance Examination Board or similar credit-by-examination programs designed to eliminate the duplication. In addition, more institutions should join the effort to identify uniform competencies in designated courses which can be tested and accepted by the colleges.

The legislature has assigned to the community junior colleges the primary responsibility for offering compensatory instruction for students who enroll in college with inadequate preparation. The Coordinating Board has reaffirmed that responsibility for the community colleges, but has recognized the extent of the problem by authorizing public universities also to offer a limited amount of remedial instruction in reading.

Junior College to University

An additional part of the statutory mission of community junior colleges in Texas is the offering of two years of collegiate study transferable to a bachelor's degree program at a public university. This transfer from junior to senior institutions frequently creates articulation problems. (Some of the same problems also occur when students transfer from one university to another.)

Although some of the articulation problems which occur between high school and college also exist at this level, perhaps the most common problem is the loss of course credits. This happens for many reasons; often students change their goals, but sometimes information on prerequisite courses is inadequate. Lower-level institutions must stay abreast of changing curriculum requirements in the universities and keep their own degree requirements sufficiently flexible so that the students are not required to repeat courses unnecessarily. They also should provide effective guidance and counseling, based on program requirements of the universities, to help students establish clear goals early in their educational careers.

A major problem in transferring courses from one institution to another lies in determining course equivalency. Some decisions to accept transfer credit are made by registrars; others are made in the departmental or college offices of the university. As a result, a transferred course may fulfill requirements in one college of a university but not be accepted as equivalent in another college within the same university. Consequently, each institution which transfers students must negotiate agreements with each college of each university to determine the acceptability of its courses in specific degree plans in order to advise its students adequately.

As early as 1965, the legislature sought to mitigate the transfer problem by assigning the Coordinating Board the responsibility of establishing a core of freely transferable courses from junior to senior institutions. The establishment of core curricula by the Board in 1968 (with a few additions since that time) has proven helpful but has not totally eliminated the problem. Credit hours for core curriculum courses almost always transfer; however, the acceptability of the core courses in fulfilling specific degree requirements remains a problem.

A project is underway by Coordinating Board staff, with the help of institutional representatives, to review the existing core curricula, to make recommendations on the creation of additional curricula and to recommend improvements in the general provisions for transfer. Recommendations for policy change will be presented to the Coordinating Board for consideration in the coming months.

University to Graduate or Professional School

The problems of articulation experienced by bachelor's degree graduates entering graduate and professional school may be less frequent and may receive less attention than those described above. The problems are perhaps more complex than at the lower levels because of the more advanced and sophisticated nature of graduate and professional study and because of the variance in skills required for satisfactory performance in graduate school and in preparation for the different professions.

CONTINUING EDUCATION

The mission of colleges and universities has historically been regarded by the public as the higher education of youth. In fact, the Higher Education Coordinating Act of 1965 charges the Coordinating Board to "provide leadership and coordination for the Texas higher education system...to the end that the State of Texas may achieve excellence for college education of its youth...."

The higher education of youth is not, of course, the only function of colleges and universities. The statutory role and scope of Texas community colleges includes "continuing adult education programs for occupational or cultural upgrading." Since the mid-19th century when federal land grant legislation propelled higher education significantly into extension services, state and federal funding have enabled colleges and universities to offer education and services to members of the public who do not need or desire credit or degree programs.

These not-for-credit programs for adults are known by many names. There are many definitions of the terms "continuing education," "adult education," "community education," "continuing adult education" and "lifelong learning." For our purposes, we mean making learning opportunities available to adults who are seeking to enhance the education they received earlier for personal, professional or job reasons. That learning may be for college credit or not for credit.

In many instances, the degree programs available in the colleges or universities will meet the needs of adult citizens. (An example might be a college graduate who wishes to change professions and who can enroll in a community college or university to gain the skills and credentials needed to enter a new field or a lab technician who obtains a BBA to qualify to manage a medical laboratory.) However, other adults have needs not met by the credentialing function of higher education. In such cases education takes the form of short courses, seminars, workshops, lectures and similar offerings. This work often is offered at times and in places accessible to the users.

In Texas, the formula system supports the for-credit continuing education but not those courses offered without credit. The direct cost of noncredit continuing education is borne by the user. In the past the state required many of the courses that are now offered for credit to be self-supporting; that is, paid for by the students. Underlying this recent shift toward more state funding of continuing education is the question of what is the state's obligation to pay for education of its citizens. Does it extend to <u>all</u> education, <u>all</u> updating of professional, career and licensing needs?

There are increasing pressures by licensing agencies and professional associations and by individual citizens for more education at later stages in life. Some of it is for job advancement; some is for personal improvement or enjoyment. At the same time, the schools, with fewer students available, will encourage such students to enroll for credit. In some

cases formerly noncredit courses will become credit courses. Such activities may become increasingly tied to television, for which the schools will seek full state funding.

In dealing with these issues in planning for the 1980s, the Coordinating Board will need to consider several questions which are created by the dual system--the state-financed support of for-credit education and the user-supported system of noncredit continuing education. Some of these questions are as follows:

1. How should a continuing education course be defined: by where it is taught, by the nature of the course, by the nature of the student taking it (for example, older, employed, professional), by the purpose for which the student takes the course (for example, updating, for a job or enhancement of life)?

2. To what extent does state support for degree credit instruction constitute an incentive to offer for resident credit course work that by its nature and by its clientele otherwise would be considered continuing education and would be self-supporting, paid for by the user?

3. To what extent is the cost of credit instruction in Texas higher education being inflated by the offering of continuing education as resident credit courses, thereby making them eligible for state funding?

4. Would an appropriate compromise position be that of a modest level of state support to underwrite the cost of planning and administration, while leaving the direct instructional costs to be paid by the user?

The kind of questions and issues raised above cannot be resolved at this point in the preparation of a state plan, but they will have to be addressed at the state level in the next few years.

BLACKS AND HISPANICS IN TEXAS PUBLIC HIGHER EDUCATION

The participation of blacks and hispanics in Texas public higher education has increased significantly--in some respects dramatically--during the past decade in terms of enrollment, degrees received, employment and representation on governing boards.

Blacks represent approximately 12 percent of the general population of Texas; hispanics constitute approximately 21 percent. Together the two groups make up about 33 percent of the state's population, and their percentage is growing.

The U.S. Department of Health, Education and Welfare conducted a compliance review of the Texas public higher education system in 1978 and 1979 under Title VI of the Civil Rights Act of 1964. Title VI prohibits discrimination on the basis of race, color or national origin by recipients of federal funds. No word has been received by Texas officials from the federal government concerning the findings. Should the Texas system be found out of compliance with Title VI, the federal government would probably ask Texas to develop and submit a five-year desegregation plan designed in accordance with the desegregation criteria now being applied in the Adams Case* states. If such a plan were required, Texas would probably be expected to include a commitment by the state government and the institutions to enhance the programs and resources of the two traditionally black institutions, Prairie View A&M University and Texas Southern University, and to increase the rates of participation of minorities in the areas of enrollment, degrees received, employment and governance in all public institutions.

Enrollments

During the past decade, the proportions of both blacks and hispanics have increased at all program levels; i.e., the sub-baccalaureate, baccalaureate, graduate and first professional levels. Blacks accounted for 6.6 percent of all full-time students in Texas public higher education institutions in 1970. In fall 1978, blacks accounted for 8.8 percent of the total full-time enrollment in these institutions. The hispanic experience was similar, with a 1970 full-time enrollment of 7.8 percent and a 1978 full-time enrollment of 12.2 percent.

In the period 1970-1978, the proportion of blacks who were full-time students in graduate and first professional programs rose from 3.3 percent to 4.2 percent. During the same period, the increase in the hispanic proportion of the graduate and professional full-time enrollment rose from

*This is the case in which Kenneth Adams and others brought a class action suit against the Department of Health, Education and Welfare to cause the Department to either require certain states to desegregate their public higher education systems or to cut off federal funds to those systems.

3.1 percent to 4.8 percent. The following table shows how the black and hispanic proportions of the full-time undergraduate enrollment and the full-time graduate and professional enrollment have increased significantly during the period 1970-78.

Year	Full-time Undergraduate Enrollments				Full-time Graduate and Professional Enrollments			
	Blacks		Hispanics		Blacks		Hispanics	
	#	%	#	%	#	%	#	%
1970	16,369	6.8	19,519	8.2	530	3.3	494	3.1
1972	20,204	8.1	23,935	9.6	951	3.8	876	3.5
1974	22,642	8.5	30,718	11.5	925	3.9	1,012	4.2
1976	33,486	10.9	37,720	12.3	1,030	3.6	1,248	4.4
1978	27,534	9.3	38,508	13.0	1,284	4.2	1,462	4.8

Perhaps the most significant figures concerning minority enrollments are today's first grade enrollments because of what they tell us about what to expect in 12 years in terms of the high school graduating class. Almost one half of the first grade public school enrollments in Texas are minorities, as shown by the following figures for fall 1979.

	Number*	Percentage
American Indian	322	0.1
Asian	2,390	1.1
Black	35,577	15.3
Mexican American	73,189	31.6
Caucasian	120,120	51.9
	231,598	

*These figures include only those children of illegal aliens who registered and paid tuition

Degrees Conferred

Blacks received 6.6 percent of all degrees granted by Texas public colleges and universities in both fiscal 1976 and fiscal 1977. The proportion of doctoral degrees received by blacks increased from 2.6 percent in fiscal 1976 to 4.1 percent in fiscal 1977.

Hispanics received 9.3 percent of all degrees granted by the Texas public institutions in fiscal 1976; in fiscal 1977 the proportion was 9.9 percent. The proportion of master's degrees received by hispanics increased from 6.7 percent in fiscal 1976 to 8.1 percent in fiscal 1977.

Employment

The only years for which statewide data are available are 1975 and 1977, which will reflect only a two-year change. According to the reports filed with the federal government by the institutions, there were increases from 1975 to 1977 in the number and percent of both blacks and hispanics in the work force of the Texas public higher education system. Blacks represented 13.3 percent of all full-time employees of the system in 1975 and 13.6 percent in 1977. In 1975, hispanics represented 9.7 percent of the system's full-time employees and 10.3 percent in 1977. Both groups gained slightly in both the faculty and the executive/administrative/managerial job categories, with blacks showing an increase in the faculty area from 4.2 percent to 4.7 percent and an increase in the administrative area from 5.7 percent to 6.2 percent. The increases for hispanics were, for the faculty and executive/administrative/managerial categories, respectively, from 3.6 percent to 3.9 percent and from 4.5 percent to 5.6 percent.

Governance and Coordination

Each of the fifteen public senior college and university governing boards has nine members, all appointed by the governor. Prior to the desegregation of public higher education in Texas, there were no black members on the governing boards of the traditionally white institutions. By April 1978, the number of black members on senior college and university governing boards had climbed to nine, or 6.3 percent of the total of 144. The hispanic proportion was also 6.3 percent in 1978.

The members of the governing boards of the Texas public community junior colleges choose to run for election and are chosen by the voters of their college districts. Although today none of the 60 Texas public community junior colleges can be defined as traditionally black in character, St. Philip's College began as a college for blacks and even today has the largest enrollment of black students, who make up one-quarter of the student body. In 1978 the 47 public community junior college governing boards had 370 members and the number of black members had risen to nine, or 2.4 percent. Eighteen members, or 4.9 percent, were hispanic.

The nine members of the governing board of the Texas State Technical Institute are appointed by the governor. This board included one black and one hispanic in 1978.

The Coordinating Board, Texas College and University System, has a black and two hispanic members.

Prairie View A&M University and Texas Southern University

Prairie View A&M University and Texas Southern University are traditionally black public senior institutions. Prairie View A&M University is a land grant institution which is part of the Texas A&M University System. Texas Southern University in Houston is an urban institution governed by its own board. Both institutions provide academic programs through the master's degree level. Texas Southern University provides one doctoral degree program--

in teacher education--and one post-baccalaureate professional program--in law. These two institutions are essential to Texas because they serve vital public needs, and they will continue to do so in the foreseeable future. The presidents of both schools have taken a strong position that without the availability of their universities many young black students would never attend college. One predominantly serves students from rural areas and smaller Texas communities; the other predominantly serves students from urban areas. Both have strong alumni and ethnic support.

The two institutions enrolled* 11,191 black students which represented 40.3 percent of the 27,763 total headcount enrollment of blacks in Texas public senior colleges and universities.

At the undergraduate level, these institutions continued to assume a very large share of the task of educating black citizens, enrolling 9,381 black students, or 39.8 percent of all the black undergraduate students in Texas public senior colleges and universities. Of the 1,403 Texas black undergraduate engineering students enrolled in public institutions, 595, or 42.4 percent, were enrolled in the two institutions.** In the field of business and management, 1,261, or 28.4 percent of all black undergraduate students enrolled in public senior colleges and universities in that area, were attending the two schools.

The two institutions continue to carry a principal responsibility for the education of black citizens at the graduate and professional levels. Of the 3,095 black graduate and professional students in the state system, 1,810, or 46.4 percent, were at Prairie View A&M University and Texas Southern University. The institutions enrolled 1,595, or 45 percent, of the system's 3,580 black graduate students. Finally, Texas Southern University enrolled 215, or 66 percent, of the 325 black students in public law schools in Texas.

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*All enrollments referred to here and in the following two paragraphs are for fall 1978.

**Texas Southern University reported 31 engineering students; the other 564 were enrolled at Prairie View A&M University

POSTSECONDARY EDUCATION AND OCCUPATIONAL DEMAND

During the 1970s there was a clear trend toward a better educated work force in the United States. This increase in the educational level of workers shows no signs of abating in the 1980s. In 1970 approximately 12.8 percent of the labor force had completed four or more years of college; as the 1970s drew to a close, the proportion of workers with four or more years of college was approaching 18 percent. By 1985 college graduates are expected to constitute 20 percent of the labor force. The numbers of workers with from one to three years of college have also been increasing at about the same rate and magnitude.

The Changing Pattern of College-Educated Workers

Traditionally, college-trained workers have been concentrated in professional, managerial and administrative occupations. However, the educational requirements for many occupations have changed over time. As technology and management practices become more sophisticated, a higher proportion of jobs will be perceived to require a college education. In addition, the increase in the college-educated population has produced more workers with some college education in occupations which may not actually require a college degree. In the 1970s roughly one fourth of the college graduates accepted jobs in sales, clerical, service and blue collar occupations not previously filled by college-educated workers. Since employment in these occupations is expected to grow faster than in professional and management occupations, it appears that this trend for "underemployment" of the college-educated worker will prevail, if not increase, throughout the 1980s.

Matching Postsecondary Educational Supply to Occupational Demand

Along with this shift in the types of occupations filled by college-educated workers, there was also a wide variance in demand from one degree area to another. For example, the last decade saw a growing demand in engineering, business administration, computer science and health-care occupations, but relatively little demand in the social sciences, liberal arts and fine arts. The demand for elementary and secondary teachers declined drastically during the mid-1970s but now appears to be increasing. At the same time that many college graduates experienced difficulty in obtaining suitable employment, there were excess openings for workers trained in vocational and technical fields at the associate degree or certificate level.

This diverse and changing demand by the labor market for trained workers requires that postsecondary education must have some method of responding. Basically, this response can take two forms: central regulation of educational programs and quotas based on expected demand, or a "student choice" system predicated on the educational needs of an informed public. Higher education in Texas has opted for the student choice method, founded on the premise that if students are properly informed about employment conditions, they will make better decisions about their educational plans. With accurate and timely supply and demand information, career counselors "can guide our young people out of the fields where we are producing too many graduates and into fields where they can find productive and rewarding jobs....And when

students stop enrolling in certain fields, then appropriate adjustments will follow inside our colleges and universities."*

This concept of an informed public, with the freedom to make educational choices leading to self-regulation of market conditions, was also promulgated by the Council on Policy Studies in Higher Education in its final report, Three Thousand Futures. In discussing the need for contraction of academic programs during periods of plateauing or declining enrollments, the council suggests that "...reliance for contraction be placed mainly on the student market, letting the student decide which college and major programs within colleges will lose enrollments."

A key element in the implementation of the "student choice" concept in Texas has been the publication and wide dissemination of supply-demand reports which provide information on the outlook for employment opportunities and the related occupations associated with each of the major academic and vocational program areas offered in Texas postsecondary educational institutions. These reports have been well received by students and counselors. There is evidence that they have had considerable influence on student choices as well as providing assistance to educational administrators in program planning.

Data collected for these supply-demand reports provides insight to future employment opportunities for graduates of specific postsecondary educational programs. However, prior to further examination of occupational outlook, it would be helpful to review the economic and demographic conditions expected in Texas during the next decade.

The Texas Economy and Population Growth for the 1980s

The size and location of Texas will continue to make it the chief beneficiary of the Sunbelt's economic boom in the 1980s. Texas' economy differs from the nation's not only in its faster growth rate, but also in its relative immunity to cyclic declines in the nation's economy. This propensity for economic stability is attributable to Texas' healthy mixture of agricultural, manufacturing and mineral industries. This does not mean that the current recession will have no impact on the Texas economy. During the early 1980s, economic patterns in Texas will reflect the relatively slow national growth, but to a lesser extent. Overall, however, economic projections for Texas in the 1980s indicate significant gains in employment, income, sales, production and bank deposits. Manufacturing will play an important role in the Texas economy, with gains in both the value added and employment in chemical production, machinery, electric and electronic equipment manufacture, food processing, petroleum refining and apparel and textile production.

In population, Texas is the third largest state in the nation. The state's population increased from 11.2 million in 1970 to an estimated 13.4 million in 1979. This average annual growth rate of almost two percent is more than twice the national rate. There is strong evidence that this growth rate will continue and that the population of Texas will be close to 16 million by 1990.

* Statement by Governor Dolph Briscoe, September 15, 1976

Three other demographic factors have a significant impact on postsecondary education and the supply of workers to the labor market. First, during the 1970s there was a shift of population to the extent that more than 80 percent of the population now lives in metropolitan areas. Second, approximately half of the state's population growth has been the result of net migration--roughly 100,000 people annually, about half of whom come to Texas for employment-related reasons. Third, a change in age structure of the population emerged during the 1970s. The number of persons 30 years of age and older is forecast to increase steadily during the '80s. At the same time, the 20- to 24-year-old age group is projected to decline during the first five years, with a recovery during the 1985-1990 period. The net result will be an older population during the 1980s. This, of course, implies fewer people in the traditional college-going age range and a decline in high school graduates until about 1985.

Occupational Outlook for the 1980s

What lies ahead for the college graduate? The National Center for Educational Statistics estimates that 13.5 million college graduates will enter the labor force between 1978 and 1990. In contrast, about 10.2 million traditional job openings are expected to be available for these graduates. Thus, even though some improvement in employment opportunities for college graduates has occurred during the past two years, nationwide competition for jobs will remain intense for the foreseeable future. Market conditions in Texas are somewhat more favorable than for the nation as a whole. The best estimates indicate that the supply-demand equation for college graduates at both baccalaureate and graduate degree levels is roughly balanced. However, employment opportunities vary considerably from field to field. The expected employment outlook for graduates of postsecondary vocational programs is considerably better, albeit at somewhat lower average salaries. Most programs in the vocational category will provide graduates with very good employment opportunities. The outlook for some specific program areas is examined below. The source for this information is Postsecondary Educational Supply and Occupational Demand in Texas, January 1980, published by the Coordinating Board in its capacity as the State Comprehensive Postsecondary Planning (1202) Commission.

Teacher Education. There is a changing labor market for education majors in Texas and to a great extent, the entire nation. Statewide opportunities in the education field have shifted from a competitive (supply exceeds demand) to a balanced supply-demand condition. This is not to say that imbalances do not exist in specific cases. Elementary teachers with a bilingual or reading endorsement are in demand, while elementary teachers without these endorsements may experience some difficulty in locating employment. At the secondary level there is a critical need in mathematics, science, industrial arts and certain vocational areas. Generally, the competitive fields include guidance counseling, government, history, secondary health, art, psychology, sociology and music. Even during periods when the supply of teachers exceeds demand, rural school districts and schools in depressed economic areas often experience difficulty in filling teacher vacancies. Many educators are predicting a teacher shortage during the '80s. While Texas has not yet experienced a shortage, the number of teacher candidates peaked in 1972 and has dropped by approximately 30 percent since that time. Texas Education Agency

data show that 155,000 full-time equivalent classroom teachers were employed statewide in 1979. This number is expected to remain stable until 1982-83, when an increase is anticipated. Current conditions--declining enrollments in teacher education, coupled with a predicted increase in the number of primary school children by the mid-'80s--point to the strong possibility of a teacher shortage in the latter part of the decade.

Engineering. Opportunities abound for graduates in engineering disciplines. The College Placement Council's 1979-80 survey indicated that 63 percent of the baccalaureate-level job offers were made to graduates with engineering degrees. They also received the highest salary offers. Placement officials in Texas colleges and universities confirm the existence of this very favorable job market for graduates of engineering programs. Chemical and petroleum engineering graduates are in particularly high demand and garner sizeable salary offers.

In Texas the high demand for engineers has caused a 72 percent increase in graduates at the baccalaureate level over the last decade. On the other hand, this high demand and excellent salaries for baccalaureate degree-holders has had a negative impact on graduate engineering programs. Fewer students are enrolling in engineering at the graduate level, and a large percentage of those who do are foreign students. In spite of the large increase in baccalaureate-level engineering graduates, it is likely that the demand for engineers will remain high through the mid-'80s--especially in Texas with the economy strongly oriented toward energy, mining, oil and gas exploration and electronics.

While for the present and immediate future engineering graduates will have no difficulty in the job market, it has been noted that engineering is particularly susceptible to what economists refer to as "cobweb" behavior. Simply stated, during periods of high demand and commensurately high salaries for engineers, students tend to enroll in engineering in large numbers, creating a more balanced supply-demand ratio. This balance inevitably leads to fewer job opportunities and lower economic rewards, which then triggers declining enrollments.

Business Administration and Office Occupations. Employment opportunities for graduates of baccalaureate and graduate degree business programs should continue to range from very good to balanced into the 1980s. The College Placement Council reports that job offers to business administration graduates ranked second only to those for engineers. At the baccalaureate degree level, the strongest areas are accounting and finance. Nationally, finance is rated as one of the fastest growing occupations of the '80s. Accounting is also an "in" occupation for the '80s, based on the strong placement record of graduates in this field and the expected increase in business. However, the American Institute of Certified Public Accountants warns of a widening gap between a growing supply of accountants and demand in public accounting. In Texas the annual output of baccalaureate-level accounting degrees increased from about 1,300 in 1970 to over 3,000 in 1979.

The number of baccalaureate degrees awarded in other areas of business administration also has more than doubled over the same period. Nevertheless, employment opportunities have kept pace with this supply and appear likely

to continue to do so into the 1980s. This same pattern also applies for graduate-level degrees in business administration. In fact, the master's in business administration (MBA) is considered to be "one of the hottest college credentials going today." Job offers and salary levels for MBA graduates may even surpass those of some engineering graduates.

The heavy demand for workers trained in business and office-related occupations covers a wide range of educational levels. Persons with training at the two-year college level are also in great demand. Careers in office and credit management, bookkeeping and secretarial work are among those offering excellent opportunities. All indications are that a heavy demand in these occupational fields will continue into the 1980s.

Liberal Arts and Social Sciences. Liberal arts and social science programs are generally viewed as excellent preparation for graduate work and are frequently lauded for quality and scope. Students from these programs who plan to enter the job market immediately upon graduation, however, can expect a difficult job search and subsequent unusual career patterns.

The College Placement Council's quarterly surveys of job offers to college graduates reports that humanities and social science majors received only about four percent of the job offers although they represent one of the largest pools of potential employees. The Council did detect some improvement in the employability of humanities and social science graduates during the first half of 1980. Two possible reasons: (1) self-adjustment of the marketplace (for example, the steady decline in the last decade in the number of graduates from Texas colleges and universities in economics, English, government, history, sociology and foreign languages) and (2) indications that as training for many fields becomes highly specialized, employers who have a need for "generalists" are looking to liberal arts and social science majors.

While some hope for improvement in the employment outlook for liberal arts and social science graduates is justified, job opportunities in those fields will remain competitive in Texas during the early 1980s. The exception is in employment prospects for economics majors, who will find a balanced supply-demand job market and higher salary offers.

Conclusion

Texas in 1977 ranked first among the states in the value of mineral production and low unemployment; second in retail sales, construction contracts and foreign trade; third in population, gross farm income and personal income; and fourth in bank deposits. The balance of industry in Texas makes the state relatively immune to national economic declines. This healthy economic climate will contribute to favorable employment opportunities for graduates of most postsecondary educational programs in the state during the 1980s.

High demand will exist for graduates of programs at all educational levels in engineering and technology, many business administration and office occupations, computer science and data processing and medical and allied health fields. There is a changing labor market for graduates of teacher education, with the strong possibility of a teacher shortage in many geographic areas

and for certain teaching fields. Less favorable employment opportunities are probable for the liberal arts and social science major.

Employment in sales, clerical, service and blue collar occupations is expected to grow faster than professional and management occupations. This will contribute to a continuation of the "underemployment" of workers with college degrees.

Postsecondary education is faced with a unique challenge concerning how to meet most effectively the educational and training needs of students and the labor market while, at the same time, preserving a reasonable balance of essential programs. In Texas this challenge will be met in the '80s through a dedicated effort to provide the best available educational and occupational information to students, counselors, parents and school administrators so that better informed decisions can be made.

STATUS OF HIGHER EDUCATION IN TEXAS

TEXAS PUBLIC SENIOR COLLEGES AND UNIVERSITIES

As the greatest period of growth ever experienced by higher education in Texas draws to a close, the results of two divergent trends in that growth become apparent. Texas has more senior colleges serving larger and more diverse student bodies than at any time in its history. Yet there has been a blurring of distinctness of institutional missions, a homogenization of program offerings. As student bodies became larger and more diversified, senior institutions became more alike. This dichotomy has occurred as Texas public senior colleges rode the wave of rapid growth to its crest in the late 1970s. They now face stabilization, perhaps retrenchment, as enrollment growth slows and inflation erodes resources. Accomplishments and progress of the last decade need to be preserved. Unnecessary appendages of growth and expectations based on a continuation of that growth need to be trimmed. Planning must focus on how to maintain quality, keep curricula up-to-date, and provide access to students with the ability and desire for college education during a time of steady-state enrollments.

Planning for the future must be built upon developments of the past. Some of the major changes which have occurred over the last decade in the public senior sector of Texas higher education are summarized briefly below:

- more than 60 percent growth in number of senior college campuses;
- imbalances in size of institutions, with significant growth in number of very large and very small institutions;
- growth of administrative structures and positions;
- more diversified student bodies;
- less diversity in institutional roles and missions; and
- growth in kinds and numbers of programs offered by each institution.

The developments resulting in these changes, some of those which will shape the next decade, and recommendations for meeting those changes are presented in the following pages.

Expansion of the System

It is interesting to trace the increase in state institutions over time. In the last 30 years of the 19th century six institutions were established, one having been for a short time a private school for teachers. Between 1900 and 1910 two were added. The decade 1910-1920 saw great growth in numbers of colleges; seven institutions were added, three of which had been founded as private schools.

The 1930s was the only decade of the 20th century in which no institution was added to the state system; in the 1920s, 1940s and 1950s, one was added each decade, with only one of the three having previous history. From 1961 to 1965 four private or municipal colleges were shifted to state control.

By the mid-1960s improvement in higher education became a top priority in the Congress and in state legislatures. In Texas a special Governor's committee in 1964 examined the state's higher education system, found it lacking and recommended it be moved to top priority for planning, funding, expansion and enhancement of quality.

The Coordinating Board in 1968 recommended that enrollments be stabilized in existing public senior colleges and that appropriate new units be authorized. This heralded a decade of growth unsurpassed in Texas history. Seven new senior colleges were established and launched into the academic community. Five were designated as upper-level institutions, designed primarily to provide further opportunities for graduates of community/junior colleges. In addition, the Coordinating Board authorized five upper-level centers to share campuses with host community colleges to offer work at locations away from the home campuses, with degree-granting authority remaining on the main campus. This move extended educational opportunity in areas where full-fledged colleges could not be justified. Two lower-division centers also were authorized to be operated by a parent four-year college.

In just 10 years, the number of senior college units in Texas had expanded from 23 to 37--a growth of 62 percent.

As new institutions were authorized, however, enrollments were not stabilizing on existing campuses. The Attorney General ruled that the Coordinating Board lacked authority to impose enrolment ceilings, and enrollments at existing institutions continued to grow. Few of the newly created institutions reached the enrollments which had been projected and for which they planned and built facilities.

The intent of the expansion had been to improve access to higher education, to effect a more equal distribution of students among institutions and to relieve the need of existing institutions to build new facilities and hire new faculty to accommodate the enrollment growth. The new units clearly improved access to higher education for thousands of Texas citizens. However, their creation did not result in a more equal distribution of students among institutions. In fact, almost the opposite has occurred. The larger institutions have grown even larger while several new, very small institutions have been added to the system. This change is best dramatized by the fact that in 1969 there were only four institutions with enrollment in excess of 15,000, but in 1979 that number had doubled to eight. Four had enrollments greater than 20,000.

Minimal change occurred among institutions with an enrollment range of from 5,000 to 15,000. Eleven institutions were in this category in 1969 and 15 in 1979.

There was a significant growth in the number of small senior college units. In 1969 eight institutions had an enrollment of less than 5,000, but there were 14 such units in 1979. When one focuses on the institutions with less than 3,000 enrollment, the growth in small institutions becomes even sharper. In 1969 only three such institutions existed, but by 1979 that number had grown fourfold to 12.

	Number of Institutions	
Headcount Enrollment Range	1969	1979
15,000+	4	8
10,000 to 15,000	4	3
5,000 to 10,000	7	12
0 to 4,999	8	14
	23	37
0 to 3,000	3	12

A system which results in continued growth of its large institutions and increasing numbers of very small institutions can have impact upon both the quality of higher education and its cost to the state. Quality education can, and undoubtedly does, occur in both large and small colleges. However, either situation increases the difficulties of maintaining an optimum learning environment. This is especially exacerbated when a medium or smaller sized institution aspires and works aggressively to become like the larger universities.

As the state system has grown, the configuration of governing bodies has changed. Two contradictory trends have been apparent: (a) the move toward separate governing boards for each institution and (b) the growth of systems administrations.

The 37 campuses are under the jurisdiction of 15 governing boards. Five boards work through designated system administrations in their governance of multiple units. Four have jurisdiction over more than one unit, but no designated system administration. Six of the boards have responsibility for one unit each.

The development of system administrations and expansion of administrative responsibilities within each institution have resulted in rapid growth of administrative positions and personnel. These have been, in part, a response to growing demands from federal and state governments, accrediting and licensing groups and others for more reports, accountability checks and

compliance with growing federal legislation. The increase in administrative positions in some instances may be exceeding the need and in all instances has added to the administrative costs of higher education.

Evolution of Institutions and Their Missions

As the number of institutions in the state system has grown, there also has been an evolution in the types of colleges and their program offerings. The early pattern of the Texas public higher education system included a state university, land grant colleges, teachers colleges and special purpose institutions.

Some public institutions began as private liberal arts colleges. Others started as junior colleges, either privately or municipally supported, and expanded curriculum into the upper-division level either before or after their incorporation into the state system.

Several were originally normal schools, institutions offering one- and two-year programs of teacher preparation, based on the French ecole normale, a model school for the training of teachers. By the middle of the 1920s, these all had been expanded to four-year institutions--state teachers colleges--and authorized to grant baccalaureate degrees. Their primary purpose remained the education of teachers, but the basis for future diversification had been provided. Because it was still unnecessary to complete a baccalaureate degree before being certified as a teacher, summer schools were especially important in these colleges, providing opportunities for full-time teachers to return to work toward a degree. In the 1930s the teachers colleges were authorized to offer master's degrees. These were not confined to the field of education, although most of the graduate students were teachers. Graduate work, however, grew slowly, and in some colleges virtually ceased, during the late depression years and the World War II period.

Many changes occurred in this group of institutions--as in all colleges and universities--following World War II. Enrollments grew rapidly with the population adjustments of the post-war period. Many of the new students were veterans taking advantage of the educational benefits to which they were entitled. They were older than the "typical" college student, mature and usually highly motivated. Curricula were adjusted to meet new needs, and nowhere were the changes more noticeable than in the "teachers colleges." Business administration especially grew rapidly, but other programs also developed beyond their previous roles. From late 1940s through the 1950s, the legislature in a series of laws changed the names of these "state teachers colleges" to "state colleges." In 1960s names were changed again to "state universities." This last change occurred throughout the state system and paved the way for further duplication of roles and missions.

Another group of institutions was founded for a special program emphasis, usually reflected in the name: Texas Agricultural and Mechanical College (Texas A&M University), Prairie View Agricultural and Mechanical College (Prairie View A&M University), Texas College of Arts and Industries (Texas A&I University), Texas Technological College (Texas Tech University), Texas School of Mines (The University of Texas at El Paso), Girls Industrial College - College of Industrial Arts (Texas Woman's University), Lamar State College of Technology (Lamar University). All of these institutions, responding to some of the same kinds of pressures that affected the teachers college, have broadened and diversified their programs and now offer graduate as well as undergraduate programs in disciplines which would have surprised their founders.

In addition to the pressure of an older student population following World War II, a national feeling of urgency occurred in the 1960s for upgrading at all levels the teaching of such fields as mathematics, foreign languages and the sciences. The availability of federal funds for research and for student support provided strong motivation for program development.

The combined factors of student needs, national priorities and monetary support produced the system which now exists. Added to these pressures is the institutional and local community commitment to achieve prominence, based on the perception of the halo effect of the "research university" pattern.

Evaluation on the basis of such a monolithic model invites onerous comparisons and obscures the excellence of the smaller, less comprehensive institutions. Persistence of these comparisons in relation to the large research university can result in diminution rather than enhancement of quality as well as pressures to acquire more graduate programs, research equipment and faculty, and invidious and invalid "ratings." The tendency to equate growth and quality with expansion into more and higher levels of graduate work is attested to by the fact that only four of the 37 units offer no graduate work. Most offer a variety of master's degrees; six offer one doctoral program in a field of chosen priority and emphasis; and nine others offer a variety of doctoral programs. Eight provide some associate degree work in technical or vocational fields not available in nearby community colleges.

Changes in Students and Programs

Much has been written about stabilizing or declining college enrollments. The demography of the "college age" population provides indisputable evidence of a probable decline in numbers of students in this group. On the other hand, there is the tendency of other population groups to become college students. Further factors in Texas are the population and economic growth rates and their yet unknown effect on college enrollments. Statistics for recent years do indicate a leveling of growth rates for most institutions.

The long-held popular image of the high school graduate progressing steadily through four years of full-time college study to a baccalaureate degree is obsolete. Although some Texas institutions still have a predominance of traditional students, the average age of those attending college has risen. The growing participation of minority population groups in higher education and the increasing enrollment of women, especially in graduate and professional schools, have changed the student body profile of most institutions in Texas, as in the nation as a whole. An increasing number of students find it necessary or desirable to attend school part time while holding full-time jobs. Thus more students are "place bound" than in the past. The commuting student has had an impact on facilities, on programming of curricula, on scheduling and on the extracurricular life of the university. Parking lots have higher priority than dormitories. Some campuses are busier during the late afternoon and at night than during the traditional school day. Such traditional student preoccupations as campus organizations and intercollegiate athletics are insignificant or nonexistent on some campuses.

Students come from many geographic sources. While size of student body strongly influences the variety of programs available, it appears in Texas to be the least significant factor in determining the geographic origin of students. Some of the largest institutions have the most local student bodies, while certain smaller and medium-sized campuses draw statewide and out of state for students. Texans make up the largest group on all campuses.

Internal enrollment shifts among programs may have as much impact on institutions as will stabilized enrollments. Undergraduate degree production in Texas colleges traditionally has been heavily weighted toward "professional fields"--particularly education and business. These two fields account for more than 40 percent of all baccalaureate degrees awarded by Texas public colleges. Enrollments in business programs are climbing steadily as enrollments in education, humanities, social science and the sciences drop. Those fields showing greatest decline are history, English and foreign languages. Student preoccupation with acquiring skills for their first entry-level positions has caused a rise in degrees awarded in computer science, technology, allied health fields and engineering, in addition to business.

The need of students to be able to use their education in earning a livelihood and in contributing to society has brought about several changes. One perceptible trend is the introduction of "applied" components in arts and sciences programs. Another is increasing flexibility in the placement of professional training within the total program. Focused, specific preparation is regarded by some as desirable or even necessary; others point out that because the American population has a demonstrated propensity for job, career and location changes during a lengthening active life, breadth of education and training in how to learn is most fundamental.

Decreased enrollments in the humanities and sciences can result in serious imbalances in the curriculum. Programs lacking a liberal arts component fail to provide students with an understanding of the world in which

they live, the nature of the people with whom they live and the arts which can enrich their lives and enlarge their vision. Even the maintenance of adequate faculty in these fields can be difficult when additional faculty are needed in business and technology.

An interesting process to observe, one which is impossible to predict but already is apparent to those who work with college curricula, is the accelerating evolution of those compartments of human knowledge called academic disciplines. These changes both affect and are affected by program demands. Traditional boundary lines shift; one discipline absorbs another; "new" disciplines spin off from an old, accepted division of knowledge. Such developments are challenging rather than disturbing to program and curriculum planners who stop to reflect that a century and a half ago history and modern language were yet hardly respectable fields of study. Whatever the accepted divisions and categories of knowledge are in 2000, they will not be precisely those of 1900, 1930 or even 1980.

The question of how the public college and university system can best respond to the leveling or decline of enrollments, to inflated costs, and to other constricting influences is an important one. Adjustments in programming, a vital factor in an educational institution, probably will be accelerated. It has become clear that certain programs historically in place or even recently initiated have not met the needs of the clientele to be served, while other programs have emerged as important to the role and scope of these institutions. Curricular changes must continue to occur or learning will become flat, stale and obsolescent. Yet these changes must occur largely within existing resources, without continued dependence upon new, additional funds.

There is no reason to predict that institutions will cease to adjust programs, nor should they do so. They may decide that certain programs, some perhaps of long standing, should be eliminated. In some cases programs completely new to the institution may be called for. Most program adjustments, and, indeed, many "new" programs, will arise from realignments of existing courses, faculty and other resources at the institution in order to use most effectively the assets already in place.

The Coordinating Board efforts to record course and program inventories which represent Texas public higher education opportunities as they are in 1980 should facilitate an orderly response to changing needs.

Recommendations

Public higher education in Texas has developed through evolutionary processes which will continue to respond to changing conditions. Some of the responses will answer to national needs and directions; others will be motivated more specifically by state and area concerns. Overreaction to any one perceived problem or trend could distort the developmental process and result in further problems. Some changes must be accomplished by the separate

units of the state system; some will come within the prerogatives of the State Legislature or the Coordinating Board.

Actions which should be considered seriously in order to make best use of the strengths within the state system in responding to the challenges of the coming decades are the following:

1. Careful study by each institution of its mission, role, priorities and programs.

2. Evaluation of programs of study relative to their contribution to

    (a) newly focused roles and priorities of each institution;

    (b) student needs and interests;

    (c) needs of the society served by the instituion;

    (d) potential for maintenance or achievement of quality within the resources of the institution; and

    (e) effective utilization of state and institutional resources.

3. Consideration of ways to maintain and strengthen liberal arts, humanities and social sciences in an increasingly technologically oriented academic environment.

4. Reduction of administrative units within institutions wherever possible.

5. Phasing out of center operations when enrollments no longer justify their existence.

Other measures which could be studied include assessment of needs for duplicated programs, with consideration of the geographic realities of Texas and consideration of enrollment limitations.

Fields of Instruction
Texas Public Colleges and Universities

The following brief statements describe the fields of instruction authorized for public senior institutions. Any special statutory missions are noted. The fields of instruction are those of the Higher Education General Information Survey (HEGIS) classification. In many cases there are several programs under a single HEGIS classification. For specific authorized programs and levels, the Program Inventory for each institution should be consulted.

EAST TEXAS STATE UNIVERSITY is a coeducational institution of higher education authorized to offer work leading to baccalaureate, master's and doctoral degrees. Programs are offered in the following fields: Agriculture and Natural Resources, Area Studies, Biological Sciences, Business and Management, Communications, Computer and Information Services, Education, Fine and Applied Arts, Foreign Languages, Health Professions, Home Economics, Letters, Library Science, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

EAST TEXAS STATE UNIVERSITY AT TEXARKANA is an upper-level center, authorized to offer baccalaureate and master's level courses leading to degrees which are conferred by the parent campus. Programs are offered in the following fields: Business and Management, Education, Psychology, and Interdisciplinary Studies. The center may be discontinued by the Coordinating Board.

LAMAR UNIVERSITY is a coeducational institution authorized to offer work leading to associate, baccalaureate, master's and doctoral (in engineering only) degrees. The offering of "practical vocational and technical courses" is mandated by law. Associate degrees are offered in several technical and vocational areas, including nursing and allied health fields. Programs are offered in the following fields: Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Engineering, Fine and Applied Arts, Foreign Languages, Health Professions, Home Economics, Letters, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

LAMAR UNIVERSITY AT ORANGE and LAMAR UNIVERSITY AT PORT ARTHUR are lower-division centers of Lamar University. In addition to lower division academic programs, they are authorized to offer courses for vocational training programs leading to associate degrees offered by Lamar University and some certificates issued by the centers. These centers, authorized by statute, may be discontinued by the Coordinating Board.

MIDWESTERN STATE UNIVERSITY is an institution of higher education authorized to offer work leading to associate, baccalaureate, and master's degrees. Associate degrees are offered in science technologies, nursing, and allied health fields. Programs are offered in the following fields: Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Fine and Applied Arts, Foreign Languages, Health Professions, Letters, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

NORTH TEXAS STATE UNIVERSITY is a coeducational institution of higher education authorized to offer work leading to baccalaureate, master's and doctoral degrees. Programs are offered in the following fields: Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Fine and Applied Arts, Foreign Languages, Health Professions, Home Economics, Letters, Library Science, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

PAN AMERICAN UNIVERSITY is a coeducational institution of higher education authorized to offer work leading to associate (nursing only), baccalaureate, and master's degrees. Programs are offered in the following fields: Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Fine and Applied Arts, Foreign Languages, Health Professions, Letters, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

PAN AMERICAN UNIVERSITY AT BROWNSVILLE is an upper-level center authorized to offer upper division and graduate courses leading to baccalaureate and master's degrees, which are conferred by the parent campus. Programs are offered in the following fields: Business and Management, Education, Foreign Language, Letters, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies. This Center may be discontinued by the Coordinating Board.

STEPHEN F. AUSTIN STATE UNIVERSITY is a coeducational institution of higher education authorized to offer work leading to baccalaureate, master's and doctoral (forestry only) degrees. Programs are offered in the following fields: Agriculture and Natural Resources, Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Fine and Applied Arts, Foreign Languages, Health Professions, Home Economics, Letters, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

TEXAS A&M UNIVERSITY, a member of the Texas A&M University System, is a coeducational institution of higher education authorized to offer work leading to baccalaureate, master's and doctoral degrees. It is the Land Grant College for Texas and has been designated a Sea Grant College. The institution also administers a College of Medicine, and Moody College. Programs are offered in the following fields: Agriculture and Natural Resources, Architecture and Environmental Design, Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Engineering, Fine and Applied Arts (Drama only), Foreign Languages, Health Professions, Letters, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, and Social Sciences.

MOODY COLLEGE is a special-purpose four-year unit of Texas A&M University. Programs in marine-related studies are offered in the following fields: Biological Sciences, Business and Management, and Engineering. Moody College degrees are conferred by the parent campus.

PRAIRIE VIEW A&M UNIVERSITY, a part of the Texas A&M University System, is a coeducational institution of higher education authorized to offer work leading to associate, baccalaureate, and master's degrees. Programs are offered in the following fields: Agriculture and Natural Resources, Biological Sciences, Business and Management, Communications, Education, Engineering, Fine and Applied Arts, Foreign Languages, Health Professions, Home Economics, Letters, Library Science, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, and Social Sciences.

TARLETON STATE UNIVERSITY, a part of the Texas A&M University System, is a coeducational institution of higher education authorized to offer work leading to associate (nursing only), baccalaureate, and master's degrees. Programs are offered in the following fields: Agriculture and Natural Resources, Biological Sciences, Business and Management, Education, Engineering (Industrial Technology), Fine and Applied Arts, Foreign Languages, Health Professions, Home Economics, Letters, Mathematics, Physical Sciences, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

TEXAS SOUTHERN UNIVERSITY is a coeducational institution of higher education authorized to offer work leading to associate, baccalaureate, master's, and doctoral (education only) degrees. It has been designated by statute as a "special purpose institution for urban programming" and charged to "provide instruction, research, programs, and services ... appropriate to this designation." Programs are offered in the following fields: Architecture and Environmental Design (Urban Planning), Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Engineering (Industrial Technology), Fine and Applied Arts, Foreign Languages, Health Professions, Home Economics, Law, Letters, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

ANGELO STATE UNIVERSITY is a coeducational institution of higher education, authorized to offer work leading to associate (nursing only), baccalaureate, and master's degrees. Programs are offered in the following fields: Agriculture and Natural Resources, Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Fine and Applied Arts, Foreign Languages, Health Professions, Letters, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, and Social Sciences.

SAM HOUSTON STATE UNIVERSITY is a coeducational institution of higher education authorized to offer work leading to baccalaureate, master's, and doctoral (in criminal justice only) degrees. Programs are offered in the following fields: Agriculture and Natural Resources, Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Fine and Applied Arts, Foreign Languages, Home Economics, Letters, Library Science, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

SOUTHWEST TEXAS STATE UNIVERSITY is a coeducational institution of higher education authorized to offer work leading to associate, baccalaureate, and master's degrees. Programs are offered in the following fields: Agriculture and Natural Resources, Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Fine and Applied Arts, Foreign Languages, Health Professions, Home Economics, Letters, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

SUL ROSS STATE UNIVERSITY is a state institution of higher education authorized to offer associate, baccalaureate, and master's degrees. Programs are offered in the following fields: Agriculture and Natural Resources, Biological Science, Business and Management, Education, Fine and Applied Arts, Foreign Languages, Letters, Mathematics, Physical Sciences, Public Affairs and Services, and Social Sciences.

SUL ROSS STATE UNIVERSITY CENTER AT UVALDE is a center for upper level and graduate study. Courses are offered toward degrees which are conferred by the parent campus. The center may be discontinued by the Coordinating Board.

TEXAS TECH UNIVERSITY is a coeducational institution of higher education authorized to offer work leading to baccalaureate, master's and doctoral degrees. Programs are offered in the following fields: Agriculture and Natural Resources, Architecture and Environmental Design, Area Studies, Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Engineering, Fine and Applied Arts, Foreign Languages, Health Professions, Home Economics, Law, Letters, Library Science (Museum Science), Mathematics, Physical Sciences, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

TEXAS WOMAN'S UNIVERSITY is an institution of higher education for women. Men are admitted to programs in the Institute of Health Sciences and in the graduate school. It is authorized to offer work leading to baccalaureate, master's and doctoral degrees. Programs are offered in the following fields: Area Studies, Biological Sciences, Business Management, Communications, Education, Fine and Applied Arts, Foreign Languages, Health Professions, Home Economics, Letters, Library Science, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, and Social Sciences.

THE UNIVERSITY OF TEXAS AT ARLINGTON, a member of The University of Texas System, is a coeducational institution of higher education authorized to offer work leading to baccalaureate, master's and doctoral degrees. Programs are offered in the following fields: Architecture and Environmental Design, Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education (certification only), Engineering, Fine and Applied Arts, Foreign Languages, Health Professions, Letters, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

THE UNIVERSITY OF TEXAS AT AUSTIN, a member of The University of Texas System, is a coeducational institution of higher education authorized to offer work leading to baccalaureate, master's and doctoral degrees. Programs are offered in the following fields: Architectural and Environmental Design, Area Studies, Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Engineering, Fine and Applied Arts, Foreign Languages, Health Professions, Home Economics, Law, Letters, Library Science, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

THE UNIVERSITY OF TEXAS AT DALLAS, a member of The University of Texas System, is an upper-level, coeducational institution of higher education authorized to offer upper division and graduate work leading to baccalaureate, master's and doctoral degrees. Programs are offered in the following fields: Area Studies, Biological Sciences, Business and Management, Computer and Information Sciences, Education, Fine and Applied Arts, Foreign Languages, Health Professions, Letters, Mathematics, Physical Sciences, Psychology, Social Sciences, and Interdisciplinary Studies.

THE UNIVERSITY OF TEXAS AT EL PASO, a member of The University of Texas System, is a coeducational institution of higher education authorized to offer work leading to baccalaureate, master's, and doctoral (geological sciences only) degrees. Programs are offered in the following fields: Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Engineering, Fine and Applied Arts, Foreign Languages, Health Professions, Letters, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, and Social Sciences.

THE UNIVERSITY OF TEXAS OF THE PERMIAN BASIN, a member of The University of Texas Systen, is an upper-level coeducational institution of higher education authorized to offer upper division and graduate work leading to baccalaureate and master's degrees. Programs are offered in the following fields: Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Egnineering, Fine and Applied Arts, Foreign Languages, Letters, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

THE UNIVERSITY OF TEXAS AT SAN ANTONIO, a member of The University of Texas System, is a coeducational institution of higher education authorized to offer work leading to baccalaureate and master's degrees. Programs are offered in the following fields: Agriculture and Natural Resources (Food Science Technology), Architecture and Environmental Design, Area Studies, Biological Sciences, Business and Management, Computer and Information Sciences, Education, Fine and Applied Arts, Foreign Languages, Health Professions, Letters, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

THE UNIVERSITY OF TEXAS AT TYLER, a member of The University of Texas System, is an upper-level, coeducational institution of higher education, authorized to offer work leading to baccalaureate and master's degrees. Programs are offered in the following fields: Biological Sciences, Business

and Management, Communications, Computer and Information Sciences, Education, Fine and Applied Arts, Foreign Languages, Health Professions, Letters, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

UNIVERSITY OF HOUSTON CENTRAL CAMPUS, a member of the University of Houston System, is a coeducational institution of higher education authorized to offer work leading to baccalaureate, master's, and doctoral degrees. Programs are offered in the following fields: Architecture and Environmental Design, Area Studies, Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Engineering, Fine and Applied Arts, Foreign Languages, Health Professions, Home Economics, Law, Letters, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, and Social Sciences.

UNIVERSITY OF HOUSTON DOWNTOWN COLLEGE, a member of the University of Houston System, is a coeducational, open-admission undergraduate institution authorized to offer work leading to baccalaureate degrees. Programs are offered in the following fields: Business and Management, Computer and Information Systems, Engineering (Technology), Mathematics, Public Affairs and Services, and Interdisciplinary Studies.

UNIVERSITY OF HOUSTON AT CLEAR LAKE CITY, a member or the University of Houston System, is an upper-level, coeducational institution of higher education authorized to offer upper division and graduate work leading to baccalaureate and master's degrees. Programs are offered in the following fields: Architecture and Environmental Design (Urban and Regional Planning), Biological Sciences, Business and Management, Computer and Information Sciences, Education, Engineering (Industrial Technology), Fine and Applied Arts, Foreign Languages, Health Professions, Letters, Physical Sciences, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

UNIVERSITY OF HOUSTON VICTORIA CENTER is a unit of the University of Houston System, offering upper division and graduate level courses leading to baccalaureate and master's degrees which are conferred by the University of Houston Central Campus. Programs are offered in the following fields: Business and Management, Education, Fine and Applied Arts (Music Education only), Mathematics, Psychology, Social Sciences, and Interdisciplinary Studies. The Center may be discontinued by the Coordinating Board.

CORPUS CHRISTI STATE UNIVERSITY, a member of the University System of South Texas, is a coeducational upper-level institution of higher education authorized to offer upper division and graduate courses leading to baccalaureate and master's degrees. Programs are offered in the following fields: Biological Sciences, Business and Management, Computer and Information Sciences, Education, Fine and Applied Arts, Foreign Languages, Health Professions, Letters, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

LAREDO STATE UNIVERSITY, a member of the University System of South Texas, is an upper-level center authorized to offer upper division and graduate courses leading to baccalaureate and master's degrees. Programs are offered in the following fields: Business and Management, Education, Foreign Languages, Letters, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary studies. This Center may be discontinued by the Coordinating Board.

TEXAS A&I UNIVERSITY, a member of the University System of South Texas, is a coeducational institution of higher education authorized to offer work leading to baccalaureate, master's and doctoral (bilingual education only) degrees. Programs are offered in the following fields: Agriculture and Natural Resources, Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Engineering, Fine and Applied Arts, Foreign Languages, Health Professions, Home Economics, Letters, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, and Social Sciences.

WEST TEXAS STATE UNIVERSITY is a coeducational institution of higher education authorized to offer work leading to baccalaureate and master's degrees. Programs are offered in the following fields: Agriculture and Natural Resources, Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Engineering (Industrial Technology), Fine and Applied Arts, Foreign Languages, Health Professions, Letters, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, Social Sciences, and Interdisciplinary Studies.

TEXAS COMMUNITY COLLEGES

The Texas community college system comprises 47 college districts created by the voters of those districts and operated in partnership with the State of Texas. Local taxpayers are responsible for all funds necessary for the establishment and maintenance of the physical plant; they also supplement funds provided by the state for the educational programs. State aid is allocated on a uniform basis to these institutions through formulas considered by the legislature in making its biennial appropriations. The 47 districts operate 60 campuses which served over 353,000 students in academic and vocational-technical courses in the fall of 1979, an increase of nearly 200 percent over the fall of 1970. The community colleges enrolled about half of all public college and university students in 1979, from one third of the total in 1970. They now enroll over 70 percent of the total freshman and sophomore students in Texas public college and universities.

These facts raise a number of questions concerning Texas' two-year colleges. What is the community college in Texas? What are its origins? Who are its students? Where is it going?

The terms community college and junior college in Texas are, by law, interchangeable by district option. They are often referred to as community junior colleges in an attempt to convey their ties to the community, combined with their role as two-year colleges.

Development of the Community College

The community college is an American creation. It began as the junior college in the early years of the 20th century, being designed to offer the first two years of traditional college study. This work was designed to apply in its entirety toward a baccalaureate degree at a four-year college or university. Throughout the first half of the century the junior colleges developed as institutions offering baccalaureate degree transfer education. They increased in numbers primarily because they brought college education closer to home for thousands of high school graduates who could not otherwise attend college.

Following World War II, the nature of the junior college began to change. In some respects the junior college had been used as a trying ground for the "sifting out" of persons who were not well enough prepared academically or financially able to obtain a bachelor's degree. In such cases, there were no curricular alternatives for those students. Citizens' demands for increased educational opportunities and the demands for an increasingly industrialized and technical society brought pressure on the junior colleges to broaden their curricula, leading to the emergence of the diversified, comprehensive community college we see in Texas today.

In 1957 Clark Kerr, chairman of the Carnegie Commission on Higher Education, defined the community college as "a great new democratic invention, pioneering diverse and imaginative ways of providing education beyond the high school level." He said the community colleges are "more representative of America than any other segment of education." In that year the third

report of the Carnegie Commission strongly urged that the community college guarantee admission to all high school graduates and all others "capable of benefitting from higher education," that such schools charge very low or no tuition, and that the federal government stimulate nationwide development of community colleges by providing money for planning, construction, student aid and other requirements. Since that year voters in Texas have established 19 new community colleges, helping to bring college programs to within commuting distance of over 90 percent of the citizens of the state.

In 1968 the Coordinating Board adopted a statewide plan for the development of community junior colleges in Texas. The community college mission was defined by three principal responsibilities: (1) programs in general collegiate education which may lead to associate degrees and offer students lower-division preparation transferrable to a baccalaurate program; (2) technical programs of varying length leading to associate degrees or certificates and occupationally oriented programs to train students for skilled employment; and (3) continuing education designed to update and enhance skills, as well as cultural and public service programs offered in response to community interest and need. The Board emphasized the third responsibility by stating that continuing education "is of special significance for community junior colleges. Citizens of all ages and educational levels are seeking formal course study which has a meaningful relationship to advancement or vitalization of their professions and work skills, or which provides avenues for cultural and recreational interest. Such course work and such programs of study, credit and non-credit, should be a serious responsibility of each community junior college."

Additional community college responsibilities recognized by the Board included:

1. Establishment of an "open-door" admissions policy to "assure that every person is provided an opportunity in education to succeed or fail through his own efforts." That policy recognizes that the most valuable resource of the state is its citizens and that these resources must be developed in order for Texas to grow and develop to its potential.

2. "Expert and dedicated teaching and extensive counseling" as "the central focus in every community college."

3. Integration of transfer programs and the technical-occupational programs in community colleges "insofar as possible and practicable." The Board stated that "the administration of Texas community junior colleges, as comprehensive institutions, should insure that all educational programs are given equal status within the institutional structure."

In 1971 the legislature statutorily recognized the broadened mission of the community college and the obligation of open-door comprehensive institutions to provide appropriate programs for all eligible students. The statutory mandate to all community colleges in Texas stipulates that "the purpose of each public community college shall be to provide:

1. technical programs up to two years in length leading to associate degrees or certificates;

2. vocational programs leading directly to employment in semi-skilled and skilled occupations;

3. freshman and sophomore courses in arts and sciences;

4. continuing adult education programs for occupational or cultural upgrading;

5. compensatory education programs designed to fulfill the commitment of an admission policy allowing the enrollment of disadvantaged students;

6. a continuing program of counseling and guidance designed to assist students in achieving their individual goals; and

7. such other purposes as may be prescribed by the Coordinating Board, Texas College and University System, or local governing boards, in the best interest of postsecondary education in Texas."

The Two-Year Institution in 1980

The record of Texas community colleges in preparing students for transfer into baccalaureate degree programs is well documented. Research data consistently show that community college transfer students perform as well (after a brief initial period of "transfer shock" for some students), in terms of academic grade point averages, as do the "native" students who begin their college study at the senior institutions. While the broadened mission of the community college has made it possible for increasing numbers of students to pursue other goals, the academic degrees awarded by community colleges in 1978-79 represent an increase of more than 47 percent over those awarded in 1970-71.

In the transfer programs especially, the changing nature of the student body has altered the retention norms for community college students. Older and working students no longer enroll full-time for two uninterrupted college years terminating in graduation. A follow-up survey by the Texas Student Information System (Tex-SIS) found that 64 percent of the 1977-78 graduates from academic programs had indicated upon entry an intention to transfer for advanced study. It also showed that 50 percent of the associate of arts degree recipients had transferred for further study. Thirty-five percent of the academic majors that year who left the institution without completing a degree at the community college were pursuing further education at a higher level. It is also important to note that 12 percent of the occupational graduates surveyed and nine percent of the non-returning occupational/technical majors were pursuing education on a higher level. Thus, these data show that the preparation of students for transfer remains a primary function of the community college, even though its relative share of the total activity has levelled off.

More than 100 occupational programs are offered in the community colleges There is a wide array of associate degree, diploma and certificate programs in agricultural education, distribution and marketing, office occupations, industrial education, health occupations, technologies, homemaking education and other occupational fields of study. As the needs of Texas and its citizens changed since World War II, the colleges also changed. One facet of

this change is shown by comparing the ratio of academic to vocational course enrollments. In 1972-73 (the earliest year for which data are available) occupational courses accounted for 35 percent of the class contact hours produced. By 1978-79 the production of class contact hours in occupational studies had increased to 47 percent. The distribution of contact hour production varies significantly among the individual institutions in the state. For example, in one urban college, vocational instruction accounts for 80 percent of the contact hours, while in another location 90 percent of the instruction continues to be in academic courses.

Business and industry rely increasingly upon the community colleges as a source for trained workers. Of the 1978-79 Associate of Applied Science graduates surveyed by Tex-SIS, 73 percent were employed full time; 66 percent of the occupational/technical majors who did not continue their studies also held full-time jobs. These high employment rates result, in part, from the almost universal use of program advisory committees made up of employers and practitioners for each occupational curriculum. These groups press the colleges to keep their training programs abreast of the employment needs of industry.

Changing Conditions

The open-door policy adopted by the Coordinating Board in 1968 for the state's community colleges, along with a number of other factors, has changed the composition of the student body of these schools. The increased geographical accessibility of the community colleges, expanded availability of student financial aid and the overall decline in academic preparation of recent high school graduates all have contributed to the inevitable admission of students with academic deficiencies.

Institutions developed compensatory education to enable many of them to overcome their deficiencies and prepare them to enter transfer programs or suitable occupational curricula. In 1970 the Coordinating Board conducted with selected community colleges a pilot project in compensatory education The studies provided documentation that such programs could remedy academic deficiencies and therefore, should be supported with formula funds. The importance of this community college function was recognized in 1971 when the legislature adopted the community college role and scope statement, and in 1973 when it authorized community colleges to "develop programs to serve persons from backgrounds of economic or educational deprivation." The Coordinating Board in 1978 formally recognized that responsibility when it charged "the community college sector of higher education to continue to bear primary responsibility for programs and courses to upgrade students for admission to degree-credit college programs and courses."

To carry out its academic, vocational and compensatory purposes, a community college must develop a strong program of academic guidance and counseling. An open-door institution admits a very diverse student body--those with deficiencies as well as those outstanding students who could qualify for any college or university but who, for financial or other reasons, elect to attend the community college. The proper evaluation, assessment and placement of each individual from this broad spectrum of aptitudes and interests in the student pool require sensitive attention and the availability of advisors and counselors who understand people as well as programs.

Other changes have taken place in the community college. Changes in student characteristics have affected the programming and the scheduling of college activities. Community college students are on the average somewhat older in 1980 than they were in 1960, and the age gap between them and their senior college peers continues to widen. Even in the four years for which data are available, the increase from an average age of 25 for 1976 to over 27 in 1979 is noteworthy.

In addition, a shift from full-time to part-time enrollment is occurring as more and more students, particularly older adults, are forced to work and attend college at the same time.

Even the idea of campus has changed with the increase in enrollment of full-time employed adults and older, part-time students. Coordinating Board policy and state law recognize the necessity for community colleges to offer instruction at all suitable locations within the district boundaries established by the local voters in order to accommodate the schedules and the work requirements of their citizens and the business and industry of the community.

Issues and Concerns

What will be the growth and direction of the community colleges in the 1980s? Clearly the dramatic growth of the 1960s will not continue, but these institutions can expect a modest steady growth totaling a little over nine percent for the decade. Many community college leaders welcome the shift to issues other than growth. Clearly, there are issues, problems and opportunities present in this slowdown of growth.

What are some of these issues for the '80s? The central one is how to maintain the open-door commitment, the diversity of opportunity and continuing access for all who can profit from further education at a time when financial resources are scarce and are being eroded by inflation.

One of the issues arises from the dual system of funding the colleges. As demands on the tax dollar increase, the local share of community college financial support becomes particularly vulnerable to taxpayer resistance. If this climate of resistance becomes more severe, planners must be prepared to face a number of questions: What happens when local voters decline to authorize a sufficient local tax to support the operation and maintenance of the campus? To what extent should the state subsidize those districts unable to carry their share of the financial burden? To what extent, if any, should the state assume funding of physical plant operations for all districts? Should the state take over full funding of the community colleges in a manner similar to its funding of senior institutions? If the state's share of community college funding is enlarged, what happens to local control of the institutions?

In offering out-of-district courses, the community colleges must be scrupulous in their control of quality and sensitive to the possible encroachment on the activities of other institutions. Both the institutions and the Coordinating Board must meticulously avoid unnecessary and costly duplication, while at the same time fulfilling the legislative intent that junior college instruction be made available to citizens in remote locations.

As the community colleges seek to facilitate the trarsfer of credit for those students who transfer to senior institutions to pursue baccalaureate programs, both the colleges and the universities will need to be aware of the ever-changing nature of curricula and other impediments to transferring course work. To that end, the Coordinating Board should complete its current review of core curricula and transfer policies. Means must be found to keep counselors and other college and university personnel fully informed about the core curricula and the Board's transfer policy requirement. Efforts should be made to keep policies and curricula current and effective by updating them at reasonable intervals in the future. Moreover, some process may be needed for resolving differences over course credit transferability which have statewide implications for all institutions of higher education.

As the rapid growth rate of the '60s and '70s wanes and resources become tighter, community college leaders must focus their energies on activities within each institution which deserve continuing or greater support while deleting or de-emphasizing other activities. This will necessarily bring about internal stresses and pressures. Each decision will have a chain reaction impact on existing programs and personnel; there will be less elbow room and more friction.

The community colleges will be turning more of their attention toward solidifying rather than developing new programs. Under these new conditions, the reputation and credibility of Texas' community colleges will be based less on their record of growth and more on the strength of their programs and faculty. Issues such as grading policies, transfers' grade point averages, graduates' job performance and course standards will assume greater priority.

Another issue confronting the Texas community colleges in the '80s grows out of their broadened mission during the '70s, namely the expansion of these institutions into comprehensive postsecondary colleges. As indicated above, prior to the enactment of the federal Vocational Education Act of 1963, these colleges were one-dimensional academic degree credit institutions. Throughout the past two decades no role-and-scope issue has so dominated the community colleges as that of upgrading the vocational-technical programs to parity with the academic offerings. By most measures--number of students, budgeted funds, status, number of faculty, facilities--equality has been achieved. The often-touted "balance" between academic and vocational-technical programs has been reached.

Now, however, the warnings of many '60s "traditionalists" are being recalled; that is, the risk of junior colleges being converted to narrow, specialized, sub-collegiate vocational institutes. Community college leaders, the Coordinating Board and the legislature need to be vigilant in preserving the hard-won balance and the diversity of programs needed by Texas citizens.

EDUCATION FOR THE HEALTH PROFESSIONS

The health care delivery system has become a major part of the American economy over the past several decades. A diversity of factors has brought about increased demand for health services and in the supply of health professional practitioners. This health care system includes not only physicians and dentists, but also allied health personnel in a broad range of technologies and nursing personnel, nurse aides as well as vocational and professional nurses.

Our population has grown. Technology has become more and more sophisticated and specialized. Those factors, along with third-party payments and increased governmental support of health care delivery, all have broadened both the demand for and the provision of services in the health care field.

Since World War II and in particular since the 1960s, the development and growth of educational programs have been necessary to provide an adequate number of practitioners to meet the expanded demand for health care services. Since the 1960s, the State of Texas has intensified its commitment to the education of health professionals. This commitment has resulted in new medical and dental schools, new programs in nurse training at all levels and new technology programs in the allied health professions.

Now, as we enter the 1980s, a concern for overproduction of professionals in some fields and a continued shortage in other fields brings into focus the need to reassess the number and kinds of health professional schools and educational programs.

Medical Education in the 1980s

The State of Texas has long been committed to the education of physicians to provide sufficient access to quality health care for the citizens of the state. In response to the state's commitment, the Coordinating Board since the mid-1960s has continually addressed the problem of providing adequate medical education.

Although there has been a dramatic increase in the number of physicians trained in the state, problems still exist in the distribution by geographic location and by specialty, and the state is continuing to address these problems.

It is not yet clear whether Texas will be overproducing physicians in the next 10 years, whether the numbers graduating from Texas medical schools and the number of physicians in-migrating to Texas will produce a physician glut. It is difficult to quantify the physician supply for the future. At this time, only the earliest predictions of an oversupply nationwide are being heard, much as the severe shortage of physicians was viewed in the 1960s.

Now is a time for the state to stop and look.

It is almost certain that substantial increases in medical school sizes will not be needed in the future. But it is not yet time to begin dismantling the substantial progress made over the past 12 years or more. To begin retrenchment now, to turn around a long-standing state policy of physician production, could only be based on guesses, estimates and extrapolation of imprecise variables. Many hundreds of millions of state dollars have been invested in medical education in the past decade. It seems prudent and economical to protect that investment and to view with caution the future of medical education in Texas.

At the present time, five of the state's medical schools are fully developed: the independent Baylor College of Medicine and the four schools in The University of Texas System at Galveston, Dallas, Houston and San Antonio. Three other schools are still developing: Texas Tech University School of Medicine, Texas College of Osteopathic Medicine and Texas A&M College of Medicine. These schools are planning minimal increases in enrollment by the fall of 1981.

Present Status of Medical Education

In 1968, there were four medical schools in the state: The UT Southwestern Medical School in Dallas, the UT Medical School at Galveston, the newly opened UT Medical School in San Antonio and the independent Baylor College of Medicine in Houston. In that year, these four schools awarded the MD degree to 321 students.

The number of medical schools has now doubled to eight, with the addition of the UT Medical School at Houston, Texas Tech University School of Medicine in Lubbock, North Texas State University's Texas College of Osteopathic Medicine in Fort Worth and the Texas A&M University College of Medicine in College Station. In 1979, a total of 884 students were graduated with MD and DO degrees, an increase of 175 percent in 12 years.

The number of students entering medical school each year has risen even more dramatically. In 1968, 408 students entered medical school; in 1973, 787 students entered; and in 1980, 1,210 students are expected to enter medical school. This represents an increase of 197 percent in 12 years.

Physician Manpower

Not only have medical school enrollments increased in recent years but also the supply of physicians has improved.

In January 1969, the number of physicians licensed in Texas totaled 18,596. In January 1980, that number had grown to 32,805, a 76 percent increase. However, only about two-thirds of the licensed physicians reside in Texas. In January 1969, 12,897 physicians were licensed and residing in Texas, and 21,879 licensed physicians were residing in Texas in January 1980, an increase of almost 9,000.

There are other variables reducing the number of physicians actually caring for patients. Only about 60 percent of the licensed physicians living in Texas have direct patient care as their primary activity. The remaining 40 percent are inactive or retired, involved in activities other than

patient care or are in residency training programs.

Another potential significant loss of physician manpower is reflected by the age distribution of physicians. There is an indication that by 1986, 36 percent of the practicing physicians will be 65 or older.

Generally accepted as an appropriate supply of physicians is the goal of 180 physicians per 100,000 population, or one physician to 560 population. At the present time, Texas--with 21,879 physicians licensed and residing in Texas and an estimated population of 13,180,000--has a ratio of one physician to 602 population, or 166 physicians per 100,000. By this estimate, Texas still is short of physician supply by almost 2,000. If a four percent attrition rate per year is applied to the physician population and the number of medical school graduates is projected at 1,200 per year, Texas will not achieve the goal of 180 physicians per 100,000 population by the year 2000, at which time a population in excess of 19 million people is projected. This projection, however, does not include an increase in the in-migration rate of physicians, which could in the future surpass the rate of physicians leaving the state. Because of the growing in-migration of population, it may be assumed that the number of physicians coming into the state also will increase. Such an increase could provide enough physicians to reach the optimal goal by the year 2000.

These figures, even with increasing in-migration, indicate that it is necessary for Texas to maintain its first-year enrollment at 1,245, the number estimated for the fall of 1981, assuming a continued four percent rate of attrition, to achieve the goal of 180 physicians per 100,000 by the year 2000.

Conclusion

In summary, Texas medical school enrollments and graduations have increased markedly during the past 12 years, and in-migration of physicians may be assumed to increase with the state's growing population. It is not possible at this time to project an oversupply of physicians in Texas in the next decade, but it may be projected that the state will reach the goal of 180 physicians per 100,000 population, if medical school graduations remain static and in-migration of physicians increases.

Dental Education

The state also responded in the past decade to a shortage of dental manpower by increasing opportunities for dental education. One new public dental school was established at The University of Texas Health Science Center in San Antonio. The two existing schools, The University of Texas Dental Branch in Houston and the independent Baylor College of Dentistry in Dallas, were urged to increase enrollment in each entering class. State funds also were provided to Baylor for the education of Texas residents.

Now, as the 1980s begin, the concern of dentists, professional societies and, to some extent, the state and federal governments is that the number of dentists in the state not only has grown sufficiently to meet the manpower needs but also may well have surpassed that need. The numbers of new dentists graduating each year have increased by more than 100 percent, and the numbers of dentists in-migrating from other states have increased substantially as well. In 1977, for instance, 35 percent of the applicants for

Texas licensure were from out of state.

Other factors which may diminish the need for dental manpower are:

- Technological advancement and improvement in equipment design.
- The use of trained dental auxiliaries whose expanded duties permit an increase in dental productivity by some 70 to 80 percent.
- The relatively small demand for dental service which is far less than the need; only 50 percent of the population demands dental service, with only 25 percent of the population seeking comprehensive dental care on a regular basis.
- Increased access to fluoridated water supplies and preventative programs conducted by schools and the media, which have reduced the incidence of oral disease.

In a 1974 Coordinating Board study of dental education, it was suggested that a suitable goal over the next 10 years would be an increase in dentist manpower to approach the then national level of at least one dentist per 2,100 population. By 1979 the dentists to population ratio in Texas had reached one dentist per 2,023, slightly exceeding the 1974 goal, although the U.S. ratio had increased to one dentist per 1,565.

There is no doubt that the dental manpower picture has improved in the past decade. The Texas supply still does not approach the total U.S. supply, which may indeed constitute a nationwide oversupply and may explain the migration of dentists to Texas. The number of dentists in Texas is increasing at a greater rate than the growth in population. From 1970 to 1979, the number of dentists in the state had increased by 40 percent, while the population grew only 15.8 percent. In that same period, the number of dental school graduates from Texas schools increased by 74.9 percent. In other words, dentists are graduating and being licensed in the state at a far faster rate than the population is growing. Since 1955, Texas population has grown one and a half times faster than the U.S. population, while the dentist population of Texas has grown nearly four times faster than the national dentist population.

It is anticipated that Texas dental schools will be graduating up to 416 new dentists each year by 1985, even though Baylor College of Dentistry was permitted by the Coordinating Board to stop expansion at 140 students per entering class, rather than 150 as originally recommended by the Board in 1968. This continuing source of new dentists, plus the in-migration of dentists from out-of-state, and the increasing youthfulness of the dental population almost certainly precludes the need for any further expansion of dental schools or the development of any new dental schools in the foreseeable future.

However, as in medical education, it seems premature to consider retrenchment of dental education based on an imprecise picture of the future of health care needs, the growing population of the state, possible changes in the health insurance patterns of the country and continuing geographic shortages in various parts of the state. Rather, it seems most wise to continue to monitor all the elements impinging on dental manpower needs and to maintain the present support of dental schools until such time as a supportable case for retrenchment can be presented.

If an oversupply of dentists is perceived in the near future, these steps, in order of priority, are suggested:

1. Stop expansion of dental schools.

2. Reduce the state financial support of the independent Baylor College of Dentistry for the education of Texas residents.

3. Reduce the enrollments of the state's two public dental schools.

Before these steps should be taken, however, there sould be clear evidence of an oversupply of dentists for the growing population of the state.

Nursing and Allied Health Education

Nursing Education

At the same time that predictions of possible oversupply of physicians and dentists are being made, Texas is faced with a critical shortage of nursing personnel. The Texas Hospital Association last year estimated the need for 9,000 new nurses by the end of 1979. To meet this need, Texas schools of nursing, diploma, associate degree and baccalaureate programs, graduated only 3,899 new registered nurses.

The concern for alleviating the nurse shortage is widespread. It is being addressed in Texas by several special legislative committees, by nurse, physician, and hospital organizations and by the nurse educators.

Ironically, the shortage has occurred despite the fact that the number of basic (or generic) registered nurse training programs has increased from 42 in 1974 to 55 in 1980, with an additional four RN/BSN programs developed to provide baccalaureate education for registered nurses trained in associate degree or diploma programs. In only six years, a total of 17 new RN programs have been developed in Texas.

During most of those six years, enrollments in nursing programs steadily increased, as did graduations. But a reversal of that trend appeared in 1978-79, when enrollments and graduations began to decline. In the two years from fall 1977 to fall 1979, enrollments dropped by 15 percent and graduations by six percent. If enrollments continue dropping, of course, graduations will show a greater decline in the next few years.

Reasons vary for the decline in enrollments (and in the qualified applicant pool from which nursing students are selected). There is some feeling that the new career opportunities opening up for women, who traditionally have entered the nursing field, have diminished the attraction of nursing as a career. Others cite low salaries. The mean salary in Texas is $14,004 for nurses with less than five years of experience, according to a 1980 study by the Center for Research of The University of Texas at Austin's School of Nursing. Other causes may be the strenuous work loads in acute care facilities where the major shortage exists, the undesirability of certain of the hospital setting's work shifts and lack of job satisfaction.

A blue-ribbon committee appointed by the Texas Nurses Association re-

ports that the top three reasons RNs leave the work force are family responsibilities, work schedule and poor management in the work setting. For those never entering the work force after graduation, the primary reason is thought to be economic.

The number of licensed RNs who are inactive at present represents a large untapped pool of nurses. The Center for Research estimates that there are approximately 18,000 nurses licensed to practice as registered nurses who are not employed in nursing. In a survey by the center of inactive RNs, primary factors for not being in the nurse work force were identified as family responsibilities, undesirable work schedules, inadequate salaries and lack of an environment "which provides the nurse with a sense of worth as a member of the health care team."

Obviously, these factors are not ones that the Coordinating Board can have an impact upon. But it is important to recognize that a large number of inactive nurses are available if they could be encouraged, through changes in the work setting or through additional educational opportunities, to return to the nursing profession.

In addressing the nursing shortage and the ways educational programs can help to alleviate that shortage, the Coordinating Board and its staff will be examining the need for new nursing programs in geographic areas not yet served by educational programs, the need for further development of upward mobility programs in nursing and ways to help nursing schools increase the pool of qualified applicants. The possibility of developing programs to attract an older population into the nursing profession, as well as increased numbers of males and minorities, also will be studied. The four operational "multiple entry-exit" baccalaureate nursing programs will be reevaluated. Several of these programs wish to expand their programs to include basic nurse training. Whether these two types of programs can be effective operating "side by side" needs to be examined carefully. In some areas, it may be that the need is greater for a basic (or generic) training program than for the career mobility program for already licensed RNs. In other areas, the career mobility program for nurses already in practice, for new graduates of associate degree or diploma programs and for inactive nurses who wish to re-enter the job market may be more appropriate.

An advisory committee will be appointed to investigate these and other areas of concern to determine the ways that the educational sector can best address the nursing shortage. Several new degree programs will be reviewed and brought to the Coordinating Board, probably in January 1981.

Allied Health Education

The concerns with allied health education are different from those in nursing education. In some areas of allied health, there are sufficient numbers of practitioners. In others, there are identifiable shortages.

As the job market declines for many graduates of higher educational programs, employment opportunities in allied health fields are flourishing. There is a demonstrated need to provide entry-level job training in the health professions and to upgrade skills and professional competence through formal educational programs.

However, serious concerns have been raised by the growing number of narrow specializations at all degree levels, the requirements of some professional groups for higher levels of training for the professional entry credentials, difficulties with transfer of credit to implement the career ladder concept and often limited opportunities for both lateral and upward career mobility. In the program review process, other questions are raised as to the most appropriate institutional setting for certain kinds of training, the most appropriate level of training for various kinds of allied health personnel and the differences in programs needed to prepare practitioners, master clinicians, teachers, researchers and managers.

An Allied Health Education Advisory Committee was appointed in February 1979, and its final report was presented to the Coordinating Board in April 1980. As a result of that study, an ongoing Allied Health Education Advisory Committee was established to continue working with the staff in the program review process and in addressing the important issues in allied health education.

As new programs are considered and existing programs are reevaluated, the main thrust will be to provide the framework for orderly planning in allied health education to meet the needs of the health care delivery system and to utilize the state's resources for allied health education in the most economical yet most effective way possible.

INDEPENDENT HIGHER EDUCATION IN TEXAS

Texas, like most states, has a dual system of higher education, with public institutions governed and primarily financed by state government, and independent institutions governed and primarily financed by nongovernmental bodies. Most of the independent institutions are church-related, with the involvement ranging from close control to nominal historical church affiliation. A few have no connection with any religious organization. Public and independent colleges and universities, however, have a great many common characteristics deriving from their similar goals and objectives. Independent colleges lend variety and have qualities that are important to the character and strength of the whole state system.

Texas independent higher education in 1980 includes 36 accredited senior institutions, six junior colleges, one free-standing law school, one medical school, one nursing school and one dental school. The independent institutions are located primarily in the eastern half of the state where population is most heavily concentrated. Half of them were founded before 1900, as compared with 23 percent of the public institutions. There are also several comparatively young independent institutions; six have been founded since 1950. Two accredited independent senior colleges in Texas were closed in the 1970s.

Most of the independent colleges are small by 1980 standards of comparison. All are under 10,000 in enrollment; seven enrolled fewer than 500 students in fall 1979. Six of the colleges enrolled half of the students.

Headcount enrollment statistics in fall 1979 showed that just over 18 percent of the students in Texas senior colleges and universities and health science units were attending independent institutions. If enrollments at community junior colleges are considered, however, the percentage drops to just under 12 percent. About 78 percent of the students enrolled in the state's independent colleges are Texas residents.

Seven of the independent institutions (six senior and one junior) are "historically black" and have made significant contributions to the education of black students for over a century. In addition, three other institutions have been particularly sensitive to the educational needs of Mexican Americans. In 1979, the independent colleges and universities of Texas enrolled over 12,000 minority students.

Seventeen of the independent senior institutions offer some graduate work; five offer doctorates. Three of the universities have law schools. Most of the institutions offer general arts and sciences undergraduate programs combined with some career preparation. Teacher education, business administration, social welfare, theology and health science are professional programs frequently found as additions to the traditional arts and sciences undergraduate study. Some institutions have begun to offer continuing education courses, both credit and noncredit, as well as other public services.

In the 1978-79 academic year, 21.2 percent of the baccalaureate, 18.0 percent of the master's and 13.7 percent of the doctoral degrees earned in Texas were conferred by independent colleges and universities. In addition, more than 44 percent of the professional degrees in law, dentistry and medicine were conferred by independent institutions.

Economic Stress Factors

The independent colleges and universities employ about 3,600 faculty members. These institutions face staffing problems similar to those of the public colleges and universities. Salaries have lagged far behind inflation rates. There is much unevenness in rates of compensation because of the widely differing institutional resources. The percentage of faculty with tenure has increased steadily because of demographic and economic factors which work against the hiring of new faculty and the expected normal turnover attributable to job mobility.

The maintenance of a sense of financial security--essential to faculty and student morale and to the permanence, stability and coherence of academic programs--is one of the greatest challenges to independent higher education.

Costs of building maintenance, salaries, equipment and utilities have mounted with inflation. At the same time, sources of income have become more uncertain. The problem is two-fold: to attract income sufficient to meet current needs and to add to endowments for future security, and to make the best possible use of resources in order to serve students within available resources.

Independent institutions have responded to their economic crises in various ways, depending upon the characteristics of the institution and the nature of the financial exigency. Many institutions are evaluating program priorities to determine whether elimination of some and addition of others more in line with student goals and societal needs should be undertaken. In some cases programs have been phased out. In some institutions faculty positions have been eliminated. A few schools are retraining faculty in order to reassign them to other positions. Intercollegiate athletics programs are being reassessed and in some cases curtailed or eliminated. Most campuses have made great efforts to conserve energy in order to moderate the effect of rising utility rates. Cooperative use of resources such as libraries, facilities and faculty have been effective in some areas.

Independent institutions depend heavily upon large contributions of individuals, corporations and foundations. The attracting of such funds occupies a great deal of the time and talent of the leadership of these institutions.

Most of the senior institutions are members of the Texas Independent College Fund or the United Negro College Fund, which pool fund-raiding efforts by organizing contacts and solicitations. As a nonprofit research organization, the Independent College and University of Texas Foundation provides information about and analyses of independent institutions to assist policy-making bodies and aid in fund-raising efforts.

Tuition furnishes a far greater proportion of the income of independent than of public higher education. Increasing tuition can be counterproductive because it can force enrollment losses. Attracting additional students to produce more tuition is especially difficult in the face of uncertain economic conditions, a general leveling off or decrease in the traditional "college age" population and a nationwide decline in the college attendance rates of this age group. If programs are curtailed for economic reasons, further enrollment drops may follow. Some of the independent institutions face more numerous and even more difficult choices than the public colleges and universities.

Because of high costs to the student, independent institutions have emphasized student aid as incentives. An increasingly important financial resource for independent institutions for the past decade has been government funds. The section below on financial aid itemizes the programs and level of assistance to the independent colleges.

State Support of Independent Higher Education

The Texas Tuition Equalization Grant (TEG) program since 1971 has assisted students to make up the difference between tuition at a public and an independent institution. The present law provides a ceiling of 50 percent of the amount expended by the state for each student, calculated in relation to the legislative appropriations for instructional and general costs. The current maximum grant per student is $1,136. For the next biennium, it will be $1,369. However, the actual level of assistance will depend upon legislative appropriations.

Since fiscal year 1972, the state has subsidized Baylor College of Medicine and Baylor College of Dentistry for the medical and dental education of Texas residents. Appropriations are based upon the calculated costs of educating students at certain units of The University of Texas System. Total appropriations for fiscal 1981 were $28,880,837.

Although the aggregate amounts contributed by the state are large, they represent a small percentage of the legislative appropriations for higher education. The TEG program costs the state less than 1 percent of the total appropriation for higher education. The contracts with the Baylor medical and dental colleges cost 1.6 percent of the state appropriations for health-related schools.

The perception of the values of independent higher education to a state depends upon the perspective of the citizen considering them. To the student they offer a choice of programs not available at public institutions, smaller student bodies and in some cases a different approach to higher education.

The faculty provide important intellectual and economic resources to the communities in which they serve and to the state as a whole. The more than $350 million dollars in general operational cost each year is an important contribution to the state economy. Out-of-state and foreign students

in these institutions also bring significant income to the state and enrich the education and culture of the college and universities communities.

The facilities of these institutions are financial and architectural assets to the communities in which they are located. The total assets of the independent colleges and universities, combined physical plants and endowments, are estimated at over two billion dollars.

From every point of view, therefore, the independent colleges and universities of Texas are a significant public resource, performing a public service in the education of Texas citizens and contributing to the economic growth of the state.

STUDENT FINANCIAL AID IN TEXAS IN THE 1980s

Four major factors will shape student financial aid in Texas during the 1980s. These factors will influence the nature of the financial aid programs available to Texas students, federal funding levels, state appropriations for students in Texas higher education, the financial need of Texas students, the distribution of available dollars to needy students and use of the programs by students.

The first factor is the reauthorization of federal student financial aid programs every five years as mandated by law. In 1980, reauthorization reduced the overall cost of student financial aid programs, increased accountability in the administration of student financial aid, provided more responsibility for administration of the programs to postsecondary institutions and included new groups to be served by the student aid programs. In 1985, the federal student aid programs will once again undergo reauthorization.

Second, inflation and the resulting attempts to control or reduce it will continue to be major influences on financial aid in Texas. These influences will extend through the 1985 reauthorization period and probably through the end of the decade.

A third major influence on financial aid involves the decisions of the Texas Legislature concerning tuition increases for students enrolling in public institutions of higher education in Texas. If the decision is made to raise tuition, what percentage of the total cost of education should be borne by the student? Some states require students to bear up to 25 per cent of the total costs of their education. The results of these deliberations must be considered in light of the fact that even when tuition is held constant, the cost of education for a single student living on campus has risen by 10 percent or more each year since 1977. Tuition increases and inflation through the 1980s will greatly affect the financial need of students in Texas.

The fourth factor that will influence financial aid in Texas is student enrollment in public and independent institutions in Texas. Although enrollments have begun to stabilize at Texas colleges and universities, there will continue to be modest growth at some institutions. In addition, eligibility for participation in state grant programs recently has been extended to half-time students. The overall effect of higher tuition charges, inflation and the larger pool of students eligible for assistance will be a heavier demand on federal and state resources for financial aid.

Pressures on Financial Aid

Several tensions will emerge or continue to exert pressures on financial aid in Texas. First, the heavier demand by Texas students for federal and state financial aid will occur during a period when pressures in Washington will grow to reduce federal costs in financial aid.

student assistance programs.

1. Basic Educational Opportunity Grant (BEOG)
2. Supplemental Educational Opportunity Grant (SEOG)
3. College Work-Study (CWS)
4. National Direct Student Loan (NDSL)
5. Guaranteed Student Loan Program (GSLP)
6. Health Professions Student Loan
7. Nursing Student Loan and Scholarship Program
8. Health Education Assistance Loan (HEAL)
9. Law Enforcement Education Program (LEEP)

In addition, there are special programs and benefit programs provided by the federal government such as financial assistance programs for native Americans, Social Security benefits and Veterans Administration benefits.

The state provides assistance through eight programs:

1. Hinson-Hazlewood College Student Loan Program (HHCSLP)
2. Tuition Equalization Grants (TEG)
3. Tuition Equalization Grants - State Student Incentive Grant (TEG-SSIG)
4. Texas Public Education Grants (TPEG)
5. Texas Public Educational - State Student Incentive Grants (TPE-SSIG)
6. State Rural Medical Education Program
7. Tuition Exemption and Waiver Programs
8. Line-item appropriations

A ninth program, the Texas Assistance Grants Program, has not been funded, although funding for fiscal 1979 and 1980 and in several prior bienniums was sought. In addition, eligible students may receive aid through the Texas Rehabilitation Commission, the Texas Commission for the Blind and the Department of Human Resources.

Financial aid at the institutional level includes scholarships and loan programs provided by donors or endowments. Civic organizations in the state also provide scholarships to Texas students; a notable example is the League of United Latin American Citizens.

In addition, the competition will continue for financial aid dollars between the middle-income students and students from the lower socioeconomic class. The Middle Income Assistance Act of 1976, passed to meliorate the effects of inflation on the middle-income family and to counter the demand for tax credits for educational costs, broadened the eligibility requirements for five federal programs originally designed to provide opportunity for students from low-income families. These included the Basic Educational Opportunity Grants Program and the campus-based aid programs. Students from families earning $25,000 or more became eligible for these programs under provisions of the 1976 act. Also, the income ceiling was removed from the Guaranteed Student Loan Program, extending eligibility for those loans to students from middle- and upper-income families. Private lenders in that program tend to opt for those students most likely to repay loans, making it more difficult for students from low-income families to obtain GLSP loans.

However, the middle-income student, faced with tuition increases, has had difficulty in obtaining Federal Insured Student Loans through commercial lenders. When the FISLP began in 1971, many of the commercial lenders in the program experienced long delays in processing of loans through the federal system and a high default rate among student borrowers. As a result, many eligible lenders discontinued participation in the program. Moreover, inflation has reduced the availability of loan monies. Participating lenders often restrict loans to long-time customers or allocate only a set amount of money for student loans, to be available on a first-come, first-served basis. Several higher education authorities* operating in specified areas of Texas, have improved the number of participating lenders by purchasing student loan notes, thus supplying liquidity to lenders. The Federal Student Loan Marketing Association has performed a similar role on a more limited basis. The Texas Guaranteed Student Loan Corporation, scheduled to begin operation in 1981, may encourage more lenders to participate in the Guaranteed Student Loan Program. Current legislation provides for a new loan program for parents of college students. Such a program will appeal to the middle-income family.

Three minor areas of tension will continue to exist. Two-year institutions, which serve a large number of students enrolled less than half time, and proprietary schools will continue to seek more financial aid. Many of the two-year institutions have claimed that they do not receive a fair amount of student aid funds, in part because the less-than-half-time student is not eligible for most forms of financial aid. But discussion continues on how best to aid these students due to the growth of continuing education programs. The proprietary schools in Texas will continue to seek state sources of financial aid for their students.

Sources of Student Aid

In 1979-80 student financial assistance for Texas students was provided through four sources--the federal government, the state, colleges and universities and civic groups. Federal assistance is provided through nine

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*Higher education authorities are secondary markets for student loans designed to provide capital for lenders. The authorities are able to purchase student loan notes from lenders and service the accounts through the sale of tax-exempt bonds.

Trends in Loan and Grant Programs

Charts I-III on the following pages illustrate current trends in student financial aid in Texas. The Basic Grant increased dramatically in total dollar amount awarded and number of recipients within one year of its beginning in 1973-74. In 1977-78 over $80 million was granted to over 110,000 students in Texas. State grant programs have shown increases since 1976 in total dollar amount granted, number of recipients and average grant amount. With the advent of the various grant programs, a policy of grants first and loans last has developed in institutional administration of student financial aid.

The various grant programs have had a considerable effect on the Hinson-Hazlewood Loan Program. Total dollars loaned and number of loan recipients made a downturn in 1974-75, primarily as a result of the Basic Grant program. The downturn occurred during a period of increasing enrollments in public and independent institutions of higher education in Texas. Because the average loan has increased, the overall dollar volume of loans has not fallen quite as much as the level of participation, which has turned down markedly. Current projections indicate a new upturn in the use of Hinson-Hazlewood loans; however, the effect of the state guaranteed loan corporation on state loans remains to be seen.

Several efforts should be encouraged in the coming years in Texas student financial aid. First, student financial aid programs based on financial need must be given visibility as tuition increases occur and as inflation continues to affect lower-income families. All of the programs administered by the Coordinating Board are need-based programs. If public tuition is increased, the 50-percent-of-public-school-cost funding for the Tuition Equalization Grants Program must be maintained to provide students in Texas the choice of attending an independent or public institution of higher education. The Texas Public Educational-State Student Incentive Grants Program can be utilized by more institutions to help exceptionally needy students. Institutions can be encouraged to put Texas Public Educational Grant Program funds to more varied uses. To better assist students from middle income families, institutional financial aid officers can be given greater flexibility in determining need under the Hinson-Hazlewood College Student Loan Program.

Continued improvement can be made in distributing funds among students. Most institutions accept the packaging formula of grants first and loans last with refinements depending on the classification, need and academic strength of the student. In the future, the distribution of funds, as reflected in packaging, must be sensitive to the particular needs of low income students and not overburden such students with loans. Loans to the middle-income student are more justifiable. There should be continuing efforts to increase the availability of funds for grants, loans and work opportunities.

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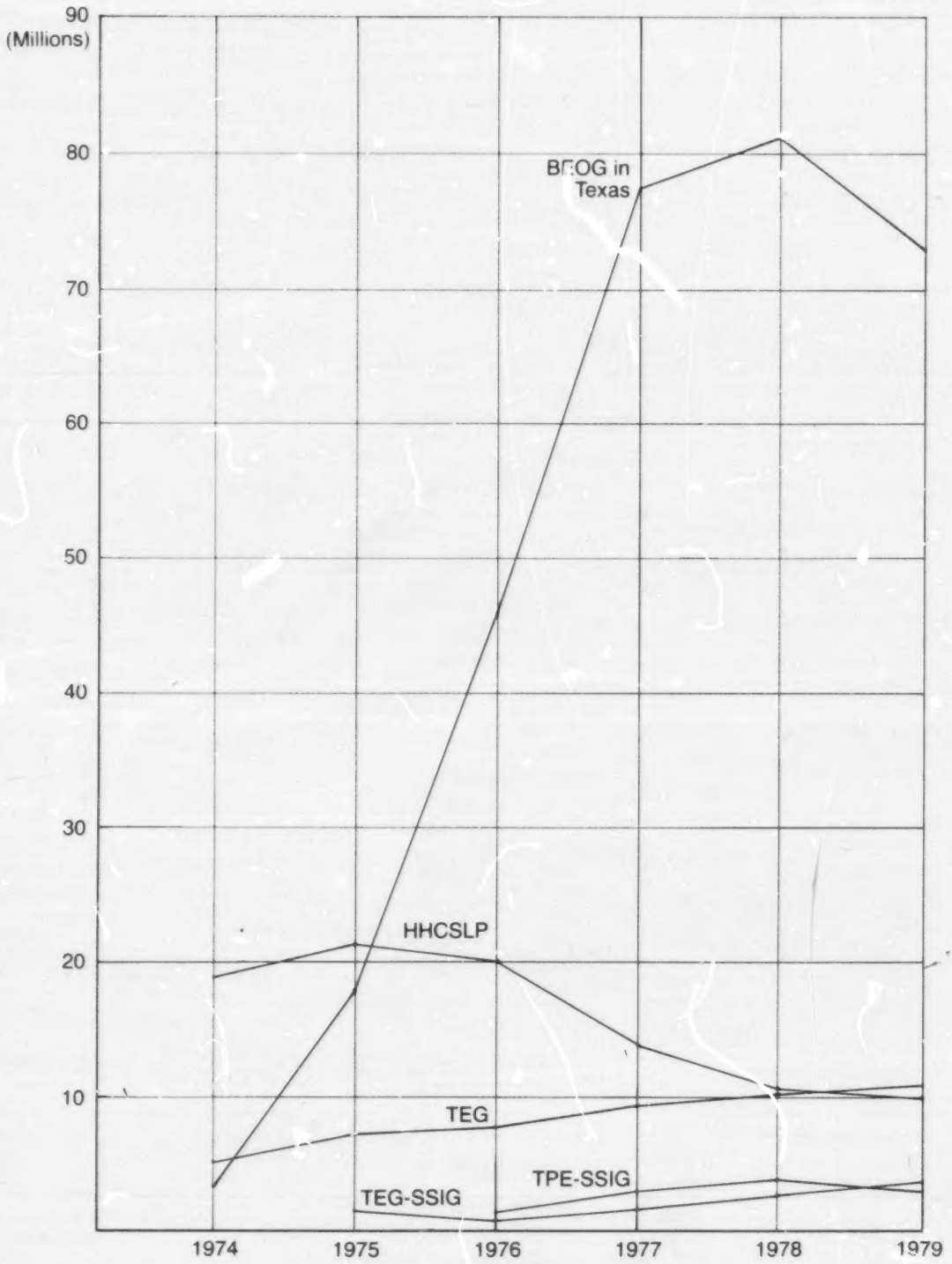
I.

TOTAL DOLLAR AMOUNT OF STATE GRANTS, BASIC GRANT, AND STATE LOAN PROGRAM



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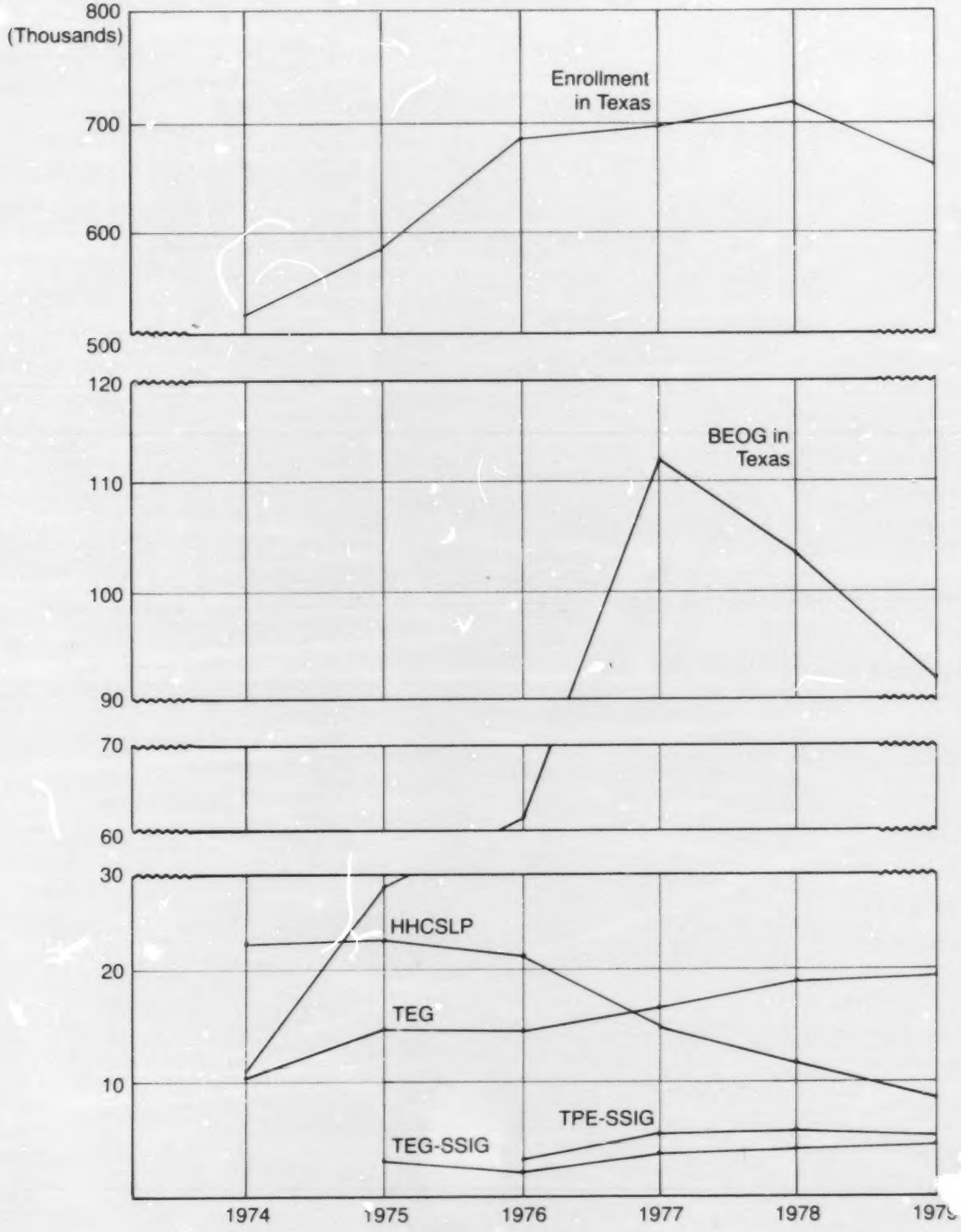
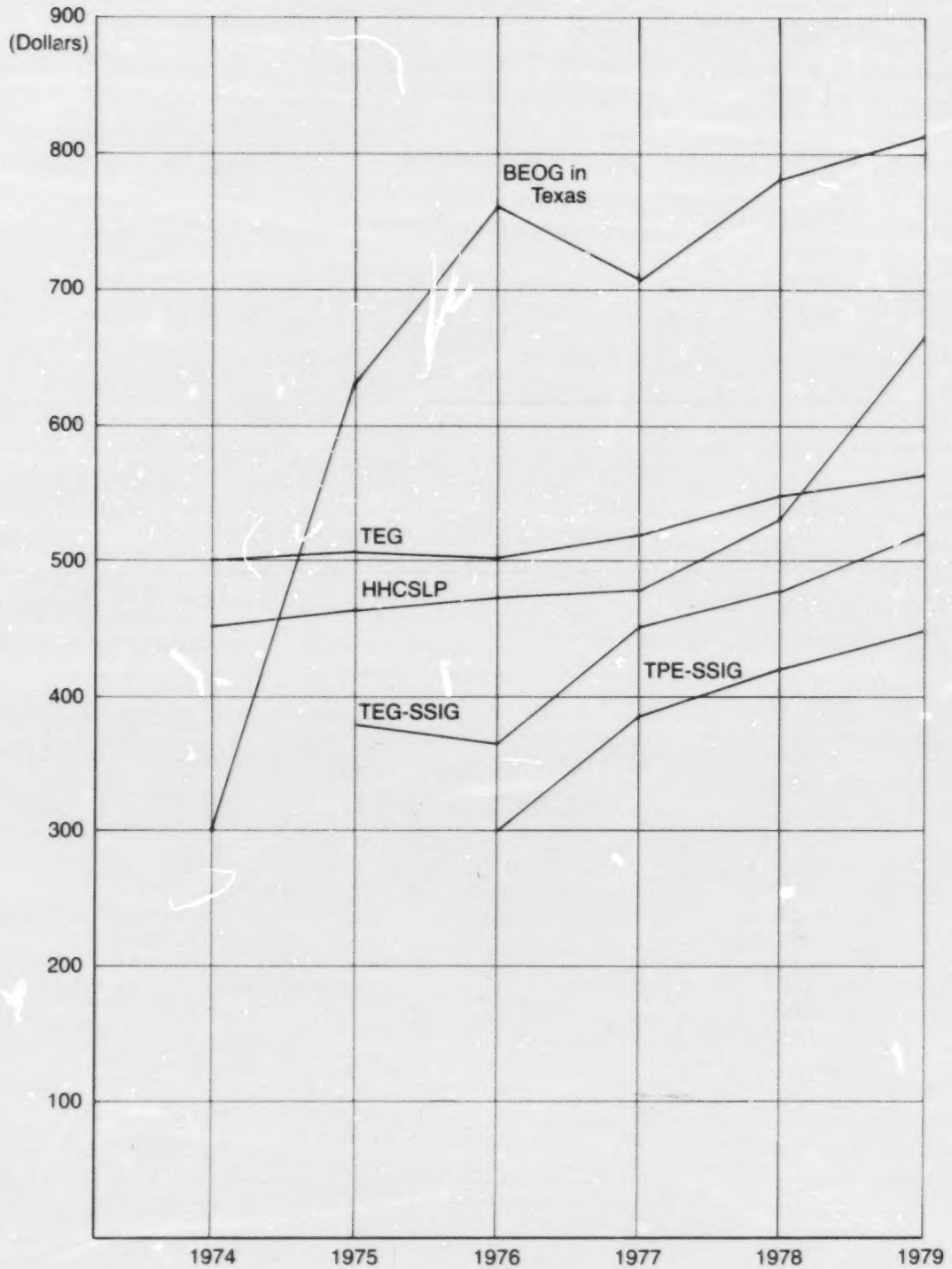
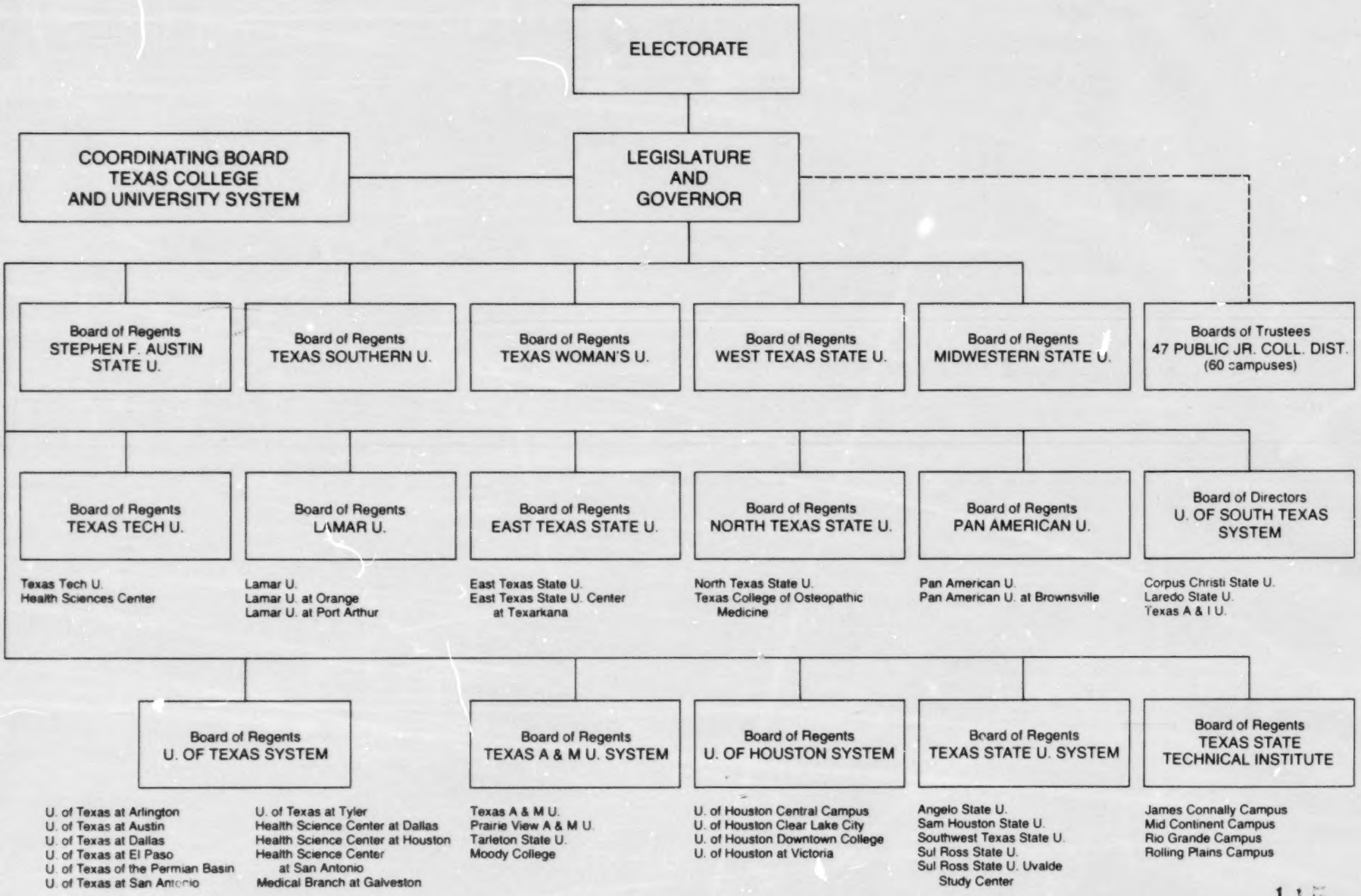
II.
ENROLLMENT IN HIGHER EDUCATION IN TEXAS AND NUMBER OF RECIPIENTS OF STATE GRANTS, BASIC GRANT, AND STATE LOAN PROGRAM



III.
AVERAGE GRANTS AND LOAN FOR STATE GRANTS, BASIC GRANT, AND STATE LOAN PROGRAM



TEXAS PUBLIC SYSTEM OF HIGHER EDUCATION GOVERNANCE STRUCTURE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